# THE PRIMARY
# TEACHER

## CONTENTS

witnessing an experiment in Gujarat which was at once refreshing and edifying True, this experiment was being conducted in the garb of a sectarian religious practice and yet it had lessons for others to follow

## Unique Institution

Established in the ancient tradition of the Gurukulas, Sri Swaminaryan Gurukul at Rajkot with branches in Junagadh and Ahmedabad is a unique residential-cum-teaching institution This institution, like its counterparts elsewhere, is run by monks who number fifty in all at one place. Their founder had decreed that "dissemination of knowledge and education is a great meritorious deed". The founding father Sri Swaminarayan was a Brahmin from Uttar Pradesh who had absolute faith in the philosophy of Lord Krishna Born on 2nd April 1781 in Ayodhya, the Swami led an early life of penance and religious study In the form of his heritage he left to his followers a book of aphorisms that contain his wisdom and dream

The present-day Gurukulas draw their inspiration from the life and teachings of this saint. What strikes a modern observer of this residential-cum-teaching institute is the strict regimen which it follows under the over-all supervision of the monks. The inmates have to get up early, say their prayers collectively, and read, play and sleep in a spartan atmosphere It is not the inexpensive living of and supervision by the monks, who are ascetics to the core, that appeal to a critical observer but the total regimen as such has a fervour which leaves a permanent impress upon the minds of those who come across it Also impressive are the outcomes in the form of puritanic habits of children who live there and grow into mature citizens Both in curriculm and teaching methods the school (Gurukul) has no distinct personality This Gurukul is like any other public school for the poor. And yet it is superior to any other institution in a given type of training that it offers This training is what constitutes moral education Children live in a commune type of atmosphere They learn to obey and live collectively. They have no occasion to tell lies or steal In fact these habits so common in life do not pay in this Gurukul

## Cooperative Living

The spartan life with a suitable admixture of moral and spiritual training helps children learn the value of proper education The Gurukul itself is an example of leading a most secular living as there is "no discrimination on the basis of caste, religion or class" The admission card prohibits all from declaring their caste, religion, or status Considering that India is known for its highly organized caste and class structure, this Gurukul provides a refreshing example of how one can rise above these narrow considerations The Gurukul has a hostel, a school kitchen, a printing press, a dairy farm, cattle-sheds, etc, and the work required to make these facilities available to all is undertaken both by the monks and the senior students which infuses among the latter a sound dignity of labour It may be noted that all residential schools help children lead a cooperative life but in this Gurukul there are several plus points. This cooperative living has a unique feature of being spiritually elevating and physically rewarding

In the form of saying prayers and meditation, besides taking yogic exercises, the school offers a rich fare to children keeping them at once free from diseases and disorder The moral training in this Gurukul is in fact an experiment which others must try What a secular, socialist republic like India needs is universalisation of these practices more especially its cooperative tenor and elienation-free social climate In a modern, tense and sick life, this Gurukul offers a model for an alternative type of schooling and living

# Learning Science through Environment

A. ELIZABETH

*Vice-Principal, Concordia Teachers
Training Institute
Ambur, Tamil Nadu*

SCIENCE has been defined as organised knowledge of the environment. Not only knowledge but also the process of acquiring knowledge is science. For acquiring knowledge a systematic method is followed by all people, whether children, adults, educated, or uneducated.

It is a misnomer to say that children learn better from sophisticated appliances and aids

On the other hand, learning takes place effectively and naturally when children make use of the materials available in their immediate environment Such use of environmental objects is interesting to children as they are related to their life Children enjoy to handle and manipulate the materials in the environment Learning takes place in a natural and enjoyable situation

Children have a natural ability of following the scientific method in learning Even a newborn child is able to observe, classify, form hypothesis and come to conclusions If he does not do this, he can never identify his father or mother. He is able to differentiate between things which give pleasure and which give pain Different sounds are identified by the baby At certain sounds he smiles and laughs, at others he shows fears or repulsion

In the same way a school-going child has the same ability to learn about from the environment Teachers only have to allow the child to learn from the environment and provide opportunities for them to come into direct contact with the environment Through a proper plan, the teacher can guide the child to experiment and learn There is no substitute for experiential learning

The "UNESCO Source Book for Science Teaching" says

"If science is to be learned effectively it must be experienced Science is so close to the life of every girl and boy that the teacher need never be without first hand materials for the study of science The world within us, beneath us, around us and above us, in any part of the Globe provides inexhaustible supply of phenomena which can be used as the subject-matter of science teaching and of materials which can be used to construct scientific equipments and teaching aids "

**Environment as Effective Teacher**

On the basis of her long experience of teaching Standard I, the present author finds that

the oral method of teaching is most commonly practised in our schools The classrooms are bereft of any concrete material and are barren A few charts and some pictures which have no relevance to the teaching of a particular day or session decorate the classroom When asked why not to reduce the oral method and follow a self-experiencing and self-experimenting method allowing the child to learn through discovery, the invariable answer given by the teachers is that they do not have teaching aids and the managements do not provide them with funds for buying them This, indeed, is surprising, as environment itself is an inexhaustible mine of very effective teaching aids which are available at no cost The teacher has only to use her eyes to see them and fingers to pick them up Recognising environment as an effective teacher particularly of science, the author organised in the presence of a group of teachers an environment-based demonstration lesson for Standard I, with the objective of demonstrating to the teachers and teacher-trainees that

— materials in the environment could be used effectively for teaching
— scientific concepts could be developed easily even in children of Standard I, using objects available in the environment
— learning through discovery was possible in Standard I
— by proper guidance children of Standard I could be involved in experimenting.
— skills of observation, classification and hypothesising could be developed in children even at this stage.
— children could be made to enjoy learning through environment
— teachers could become more resourceful if only they could see the environment with open eyes.
— without incurring expenses, teaching could be made concrete and the classroom filled with teaching-learning materials of various types

Matter in Solid State was chosen as the

subject-matter of the demonstration lesson with the objective of developing understanding of the following concepts among the children

— Several materials in Nature exist in Solid State
— Solids have definite shapes.
- Shapes of solids can be changed by using different methods
— Solids occupy space
— Some solids are heavy and some are light
— Some are brittle while some are not.
— Some solids float in water and others sink
— When solids sink, the level of water is raised
— Solids by themselves are stationary and cannot move from place to place
— Solids vary in colours
— Some solids conduct heat and some do not
— Some solids get heated soon and some do not
— Some solids burn in fire and some do not

**Methodology Used**

Divided into three groups, the children, 35 in number and belonging to Standard T, were taken outside the classroom and asked to collect stones and pieces of rocks of different shapes, colour, and sizes Back in the classroom after their expedition with their hands full of the day's collections, each group sat in a circle first to group the stones according to sizes They were then asked to press the stones, keeping each in the palm of their hands By the sense of touch, they were able to experience the 'hardness of the stones They also found that there was no movement in the stones when kept on the floor They also observed that each stone had a definite shape which could be changed only by using external force

Similarly, by categorising stones according to their weight, putting them in the tumbler/glass/ bucket of water, observing the stones sinking into the water, and the level of the water rising (here the story of the thirsty crow

proved very relevant, interesting and meaningful), the children learnt the following concepts .

— Stones are solids
— They have definite shapes
— Shapes can be changed only be external force.
— They remain in a state of rest unless disturbed by external force.
- Stones do not dissolve in water.
— They sink in water
— As they sink in water, the water level rises.
— Stones occupy space
— Some stones are heavy, some are not.

Next, performing similar experiments with other things like leaves, flowers, seeds, grains; vegitables like brinjal, potato, fruits like lemon, tomato, etc, and such articles as made of metals like nails, blades, screws, bolts, coins, wheels of broken toys, unused toys, etc, the children discovered the following

— Materials from plants have definite shapes.
— The shapes of some of the materials can be easily changed either by folding, tearing, picking out, cutting with a knife and breaking
— Some materials sink and some others float; seeds sink, roots like potato sink, some fruits float, pieces of wood, sticks, barks float
— Some are light and some are heavy.
— All these objects occupy space
— If undisturbed, they also remain in a state of rest
— Most solids sink in water and some float
— When solids sink in water the level of the water rises
— Some solids burn in fire and many do not.
— Some solids get heated quickly and some slowly.
— In metallic solids heat passes quickly.

Each session of experiments was followed by a session of feedback questions relating

to the subject of the experiment The children answered the questions as enthusiastically as they participated in the experiments The results of the question-answer session were as follows

— Twenty-three children answered more than fifteen questions correctly, 66% of children answered more than 60% of the questions correctly.

— Ten children answered ten to fourteen questions, 28.5% answered between 40% to 65% of the questions

— Only two children answered seven to ten questions, 4 5% children answered between 23% to 39% of the questions

— The arithmetic mean of the scores was 65 2; children were able to answer on the average, 16 or 17 questions out of 25, i e 65 to 68 per cent of the questions

— The standard deviation of the frequency distribution worked out to be 15 2 which was rather very significant.

## Conclusion

Environment is an unending source of teaching materials The value of these source materials depend upon how skillfully they are used Materials in the environment are so numerous that each child can use, manipulate, and experiment with them Each material should be used for a specific purpose so that the desired concept or skill is learnt

Children are very quick to learn from the environment if only they are stimulated The absorbant mind of the child is keen to observe and his analysing mind thinks scientifically. The child's mind is always open to experience and experiment and is able to cope up with the ever-widening horizon of modern knowledge The basic foundation of scientific principles and laws can be laid at an early stage without using technical words or much of sophisticated scientific terminology. By providing proper guidance in the use of the environment at the early stages, we can make great scientists, inventors and technologists out of our children

# Teaching of Imperatives :
# When and Where

J S THAKUR

*P G T (Eng), Demonstration School*
*RCE, Bhopal*

IT IS a fact that the playground attracts students more than the classroom. It is more true particularly with the kids of primary classes who have a natural instinct to learn something fast while playing. A resourceful teacher of English may very well utilize this fact for teaching his

students the different language items. But for this he has to prepare himself well in advance

For example, imperatives can be taught in a better way on the playground than in the classroom, only if proper planning is done by the teacher who may, in case it is needed
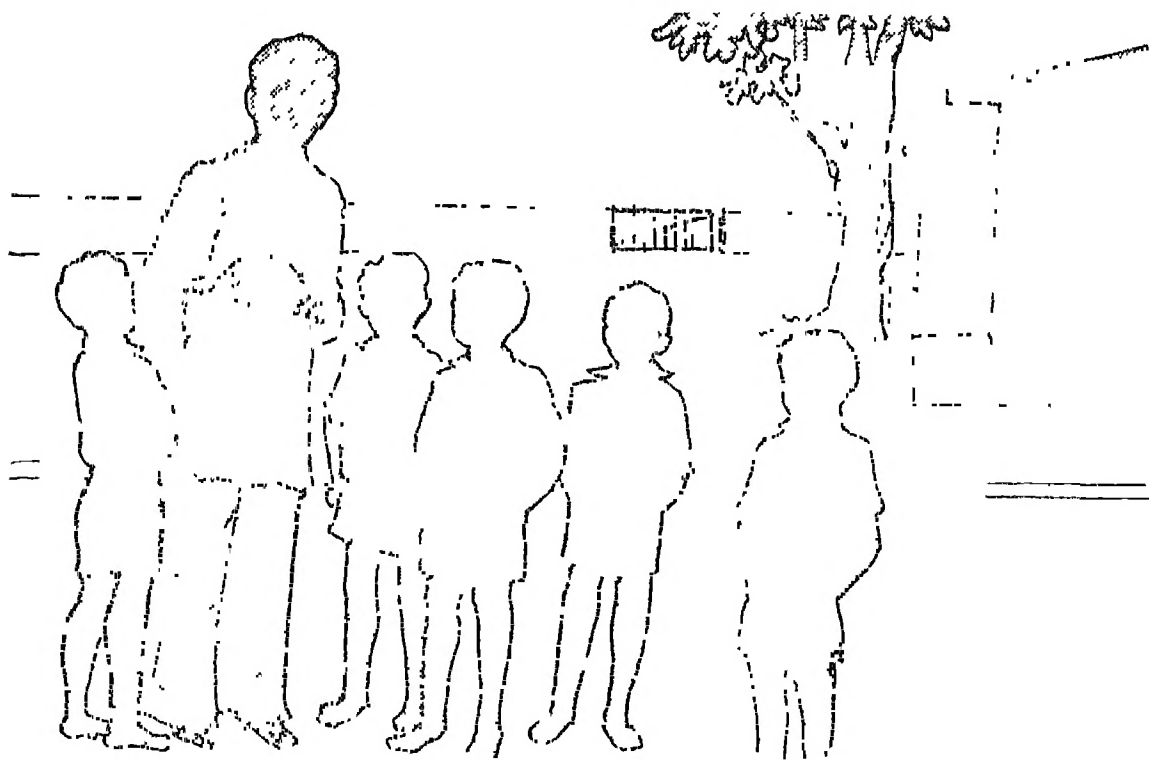
scek the cooperation of the physical education teacher He selects some physical exercises or games and through these activities leads his students in drilling simple imperatives

The day he finds his class dull, he takes the students out on the playground to involve them in fruitful learning Even the very thought of the playground makes the children cheerful and active and they learn every thing gladly and willingly in a healthy atmosphere

The teacher can begin his lesson like this "Today we will have our lesson not in the classroom , but on the playground". This declaration will immediately make the children active and restless. They will be full of enthusiasm. From here the teacher can guide his class through simple imperatives, chosen and planned beforehand.

He says—

"Please, come out of the classroom. Don't make a noise and don't disturb the other class. Don't push each other Walk out quietly Make a line. Forward march Don't break the line, please".

On the playground, the students are made to stand in a line according to their height The teacher makes them stand in four or five lines, as is convenient, by using simple imperatives Standing before them he demonstrates one simple planned exercise by using simple imperatives first for himself. The students watch the teacher with curiosity, listen to his instructions and do the actions accordingly. For example, he says · "Attention. Stand at ease. Attention Left turn. Right turn Jump and take position for the first exercise. Bring your left hand forward. Keep it at the level of your shoulder Take it upward. Stretch it sideward. Bring it down Don't move Look front. Stand at ease "

He makes the children repeat this exercise three or four times Every time, speaking clearly and slowly, he gives the instructions, so that the children are able to learn some imperatives and to understand them all. He, then, invites two or three students and ask them to give ins-

tructions to the children for the same exercise Of course, he doesn't forget to assist them, as and when needed

Now the same exercise is repeated first with the right hand and then with both the hands Almost the same imperatives are used by the teacher and the student leaders Thus, the children get a chance to listen to these imperatives a number of times They understand and act accordingly

Next day, the teacher writes these imperatives on the black-board The students read them and copy them in their notebooks The students are sure to practise these imperatives independently as they very well know that they will also get a chance to act as a leader and to give orders for some exercise or the other This works as an incentive for the children to learn fast After this, the teacher can proceed to other exercises, using new verbs in the imperatives ; but he must do all this very patiently, cautiously and after winning the confidence of his students The same procedure is adopted every time

Sometimes the teacher must engage his class in a game in order to teach new imperatives The change will be pleasant for the children and their curiosity will continue Here is one example The teacher says "Take this ball Hold the ball in your left hand Throw it up Look at the ball Catch it with your right hand Drop it on the ground Pick it up Give it to me Now stand back". Here is another example—

Draw a big circle with line Divide yourselves into two teams Select your captains Do the toss Team No. 1, spread out and stand outside the circle Team No. 2, get in the circle Begin the game. Throw the ball at your opponents Take the correct aim Hit the player with the ball. Don't enter the ring Don't hit below the knees Be quick Run fast Don't waste time Return the ball quickly, etc

For every new exercise or game, the teacher demonstrates first and then gives a chance to

different students to act as a referee or a guide or a leader. The student feels elevated when he gives orders to his classmates who do the actions according to his orders Thus, the speed of learning increases But the teacher must not forget to support the playground-teaching with classroom teaching He must take care that a verb is repeated many a time, through different activities so that the students come to have full command over it, as drill only is the best way for fixing a language item in the minds of the students. He should also take care that every student gets a chance to use imperatives, as curiosity only can make a student learn fast

Depending on the age of the students, the teacher should select a suitable game or an exercise or an activity He should follow the principles—from easy to difficult, and from simple to complicated. In the classroom he can easily teach his students to convert the orders into requests by using 'please' or 'kindly'. He can also teach how to make a suggestion or how to give a piece of advice. A proper combination of the playground teaching and the classroom teaching can help a teacher in teaching a number of verbs effectively which can afterwards be used by the students in other sentence patterns with more understanding Patience on the part of the teacher and drill and practice on the part of the students can ensure great success.
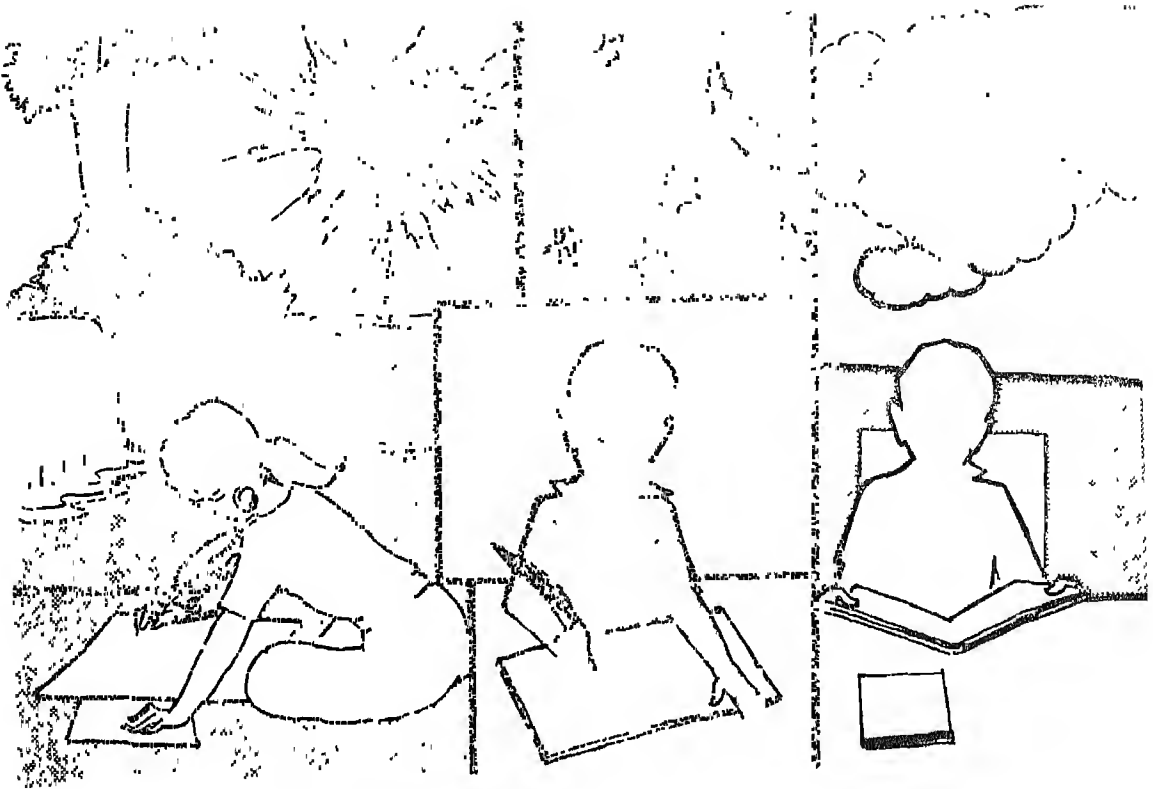
# Written Expression : Different Aspects

I S. SHARMA

*NCERT, New Delhi*

RANGING from an ordinary sentence to the writing of classics falls in the category of 'expression' What we mean by written expression are sentences and artistic expression of ideas. Whatever an individual tries to express it should be presented in proper language and the ideas should be properly placed in sentences, and also all this should be forceful and stylish It is necessary that for proper expression one ought to economise on words Written expression can be witnessed in letters, applications, essays, biographies, stories, dialogues, etc.

We must decide beforehand what precisely we wish to teach our pupils and what kind of changes we propose to bring about in their writing style This sort of decision will help us evaluate whether or not we have succeeded in achieving our goals. There could be four aspects to written expression

*1 Mechanical Aspect* It means that the children are able to express lucidly, present their ideas coherently and write correct spellings, besides marking commas and full stops.

2 *Language Aspect* Under this aspect the children are expected to paragraph their material, present it in a grammatically correct manner, and use proper idioms and *obiter dicta*, i e , quotable quotes

*3. Organizational Aspects* The organizational aspect means arrangement of ideas in paragraphs, and also proportioning the importance or otherwise of the ideas All this is done to enhance the effectiveness of the expression

*4. Style Aspect* Style, as we know, is the most important aspect of writing because as Bacon said, 'Style is the Man'. Style is individualistic and yet things like brevity, proper language for the occasion, etc , are its universal aspects

If we were to teach children against the above background it would be a gainful try This may really become a proper aid to meaningful education

## Proper Material

We all notice that as and when a child is asked to write something, he feels a bit baffled and writes a piece which is either too short or a lengthy one, which is often partially irrelevant Therefore the children be taught to write proper things alone Here are two examples of how to do it

## Football Match

'I went to watch a football match. There was a rush at the ticket counter A few vendors were selling parched peanuts I could manage to buy a ticket with great difficulty I reached the stands quickly. The stands were full all around and all the spectators had their eyes glued to the ground While on my way to the stadium, I had seen a circus announcement Also because of a collision between a scooter and a cycle I saw a crowd assembling around the place of accident The referee blew his whistle and the match started It was a lively match None of the sides could score a goal. One of my friends is a good football player I am in college cricket team. I returned after the match was over.'

If only we could remove the irrelevant material, the entire write-up would change

"I went to witness a football match. There was a lot of rush outside the stadium. I could buy a ticket with great difficulty. The stands were full and all the eyes were glued to the playground No sooner did the referee blow the whistle than the play started It was a good match but neither side could score a goal I returned home after the match was over

## Organizing Children's Day in the School

After Diwali holidays, as we came back to school the headmaster announced the commencement of the Children's Day. He wanted an entertainment programme to be organized on that day All children were delighted to listen to this announcement When I stood up to speak, I felt so shaky The headmaster congratulated us We were quite happy celebrating it In this piece we have to write about the organization of the Children's Day. A few details about how and when a particular event was celebrated should also be included.

## Proper Sequencing

Proper sequencing of a write-up is very important. At times students are not able to use proper words, and present ideas coherently. There are occasions when a child is not able to

use properly such combination of words as morning-evening, day and night, etc. We also come across sentences like

(i) Early to rise is good for health.
(ii) To start reading without breakfast
(iii) Praying in the morning is necessary
(iv) Brushing teeth in the morning is also a necessity.
(v) We have a fresh mind in the morning.

These sentences are not sequenced properly, nor are they presented in an effective manner. Besides sentences or idioms, ideas must also need proper sequencing

## Proportion

While writing an essay a child should be very clear in his mind about the matter he is going to write and how much space he is going to devote to a given idea. This is called proportionate presentation of an idea It is commonly observed that children devote considerable space to irrelevant ideas but forget to write the most important ones At this stage they need guidance and proper training so that they may avoid writing the unnecessary in preference to the very necessary A sense of proportion in writing is very essential.

## Brevity

We all know that 'brevity is the mother of vit'. Less number of words mean better style One should identify the central point and describe it in the minimum words possible

There are two places where brevity can be gainfully introduced—minimum words in a sentence and brief paragraphs. We make sentences with the help of words which carry the full import of an idea. For example, "A person could be an effective speaker if he is backed by a strong character. He must also have a sense of public service. He should have no weakness in his character". Instead of the above, one could easily say "A person in order to be an effective speaker should be a man of character and

also imbued with a sense of public service" Thus, this one sentence covers the entire meaning expressed in several sentences

## Organization

Another aspect of good writing pertains to a better arrangement of words in a sentence and of sentences into paragraphs Disjointed sentences mar the beauty of expression. The arrangement of sentences is an important factor in the expression of ideas

Children can be trained to present their ideas in a properly organized manner They can be asked to practise the arrangement of words into sentences and sentences into paragraphs A training into this art is possible at the school level

## Unity and Paragraphing

Presentation of ideas in a single paragraph is called unity of presentation Students normally press into a single paragraph multiple ideas, Several units of expression therefore confuse the reader. It is necessary that at the middle stage children are taught the meaning of units of ideas and their arrangement into paragraphs

Children should be given exercises in the presentation of ideas They may be given long paragraphs for presenting small ideas into yet smaller paragraphs according to units of single ideas They may also put together according to what we call units of ideas

## Language

Children at the middle stage are just beginning to write, therefore, it would be futile to expect them to know anything about style or presentation of ideas in the choicest words. Therefore all that we could do is to expect them write with a natural flow.

This of course does not mean that children may not be asked to use new words They may be supplied with a list of some twenty words to learn and to use them in sentences

## Originality

Originality is an important part of one's writing It strengthens one's ideas and helps one mature It is therefore essential that children be guided to present their thoughts properly Essays on village fairs, write-ups on historical visits, travel, etc., help one to mature and present his experiences in an original manner Visits to these places should be encouraged and children asked to write down what they have seen They may also be asked to describe things which they see on their way to school and back home Family functions, school functions, religious festivals, etc, can also be good subjects to write on A child should be made to feel free to write in his own way, without expecting him to follow a particular style of this or that known author He should be encouraged to express his ideas freely and coherently

# Making Primary Education Creative

BHANWAR LAL NAGDA

IN THE field of education one witnesses waves of innovations almost annually It is more true for primary than higher education A few talented and conscientious teachers of primary schools seem to be fully involved in these experiments.

The real work of education is to develop an all-round personality of the child The child is like a lump of earth ready to be shaped into anything his mentors desire. The teacher is an important cog in this development process At the primary stage aesthetic development is an eminently suitable goal to achieve. Within the category of art, we have music, dance, drama,

sculpture, hand work, etc Out of these, making earthen toys is the most inexpensive art work suited for this stage

Man has been familiar with art since his birth on this planet It is therefore natural that art and education should be interdependent Art is not merely colour and line, it is the best expression of creativity It helps one to be original, self-dependent, aesthetic and appreciative of all that is productive and creative

Children may have different types of attitudes They may be a curious type or a collector type We could mobilize their attitudes to what we want them to do They enjoy roaming around in open spaces Children make toys, models and also draw as and when they get time They undertake this work quite enthusiastically We may familiarize them with everything which helps them exhibit their creativity

## Clay in Education

Handicraft has a special place in education It provides an occasion for self-expression Creative instincts get a boost

Clay has a special attraction for children They enjoy moulding, playing, etc , with clay It is clay alone which can be shaped into any form by the children's delicate hands. It depends on the teacher as to how best he can create conditions for the development of the creative potential and imagination of the children, without trying to impose his own views on them

One ought to know how best one can prepare clay and keep it safe Children may be familiarized with the shapes and forms of

orange, guava, pomegranate, apple, pear, brinjal, bird. parrot, dove, peacock, duck, elephant, lion, horse, Lord Buddha, Gandhiji, Nehruji, etc , so that they may prepare good toys

## Clay and its Condition

1  Ready clay should not be kept unused for a long time.
2  Clay should be finely grounded
3  Use glycerine or vaseline on hands before touching clay
4  Ready clay should not get dirt on it
5  Clay models should be properly exposed to the sun
6  Wet clay should be covered with a piece of cloth

## Problems

Social-political problems may arise while preparing toys A child dreams of preparing good toys but children with a little rich background are not encouraged to play with clay Children could possibly get nervous on this point However all children, irrespective of their family background, should be encouraged and inspired to creat and produce something with their own little hands

Encouragement and inspiration are the best instruments for helping children develop and exhibit their creativity And activities like toy-making are one way in which primary education could be made creative, productive, and meaningful

# In Search of the Third Dimension

KALYAN K. BANERJEE
*Journals Cell, NCERT, New Delhi*



of our fingers receive ink and the recess portions remain uninked. As a result, we get the texture of our fingers on paper when a little pressure is applied on it.

**How to get Finger-prints**

Finger-prints can be obtained from any ink-pad available in the market, but to get prints in



HAVE WE ever thought of using our fingers, instead of brush, pencil or pastel, for creating a design? Probably, the answer will be 'No'. Here are some hints how we can make use of our fingers for preparing a design.

Every finger has got its own shape with distinct texture. It also varies from person to person. With the help of different finger shapes and forms we can possibly get a wide range of designs blending our imagination.

If we examine our finger-prints, we will find that there are darker and lighter lines. When our fingers are inked properly, the relief lines

different colours, hand-made ink-pads may be prepared. Finger-prints in different colours can also be produced by gently applying poster colour on the fingers. Take proper care to apply the colour uniformly on fingers, so that the texture and the shape of the fingers come out truely. After applying the colour on the fingers, take some finger impressions on paper. Each impression carries a different quantity of colour because of the difference of pressure

20

THE PRIMARY TEACHER

*Over-inked*

applied on paper This process describes the way how to take finger impressions after applying colour directly on the fingers

There is another process, where a small ink-pad is prepared with a piece of old cloth. Fold the cloth enough to get a thick layer Select the colour according to the desired design Dilute the colour (base colour) by adding water and



pour it on the hand-made ink-pad Allow the colour to be absorbed by the pad Now the pad is ready, and finger-prints can be taken from it



While taking the prints, allow sufficient space between two prints

For direct application on the fingers the colour should be thick Water-base poster



*Under-inked*

colour can be directly used in this process, but for the pad-system water is to be added to the original colour to dilute it so that the pad can be made wet quickly



*Smudge*

Selection of Prints

After taking a number of prints of different fingers, select some better prints Avoid over-inked, under-inked and smudgy prints The

prints which represent the true texture of the fingers, and which suit the desired requirements should be selected. Do not throw away the other prints as they may be used for some other designs which may be visualized later on.

Shape is another criterion for selection of prints. It helps us to get a proper shape of the wanted design. For preparing a goat or dog, a long-shaped print should be selected. A round-shaped print is preferred for getting a required design of a flower. To get some special effect, the whole palm's texture can be taken as and when it is required.

### How to Get Designs

One should be very sure about the subject which is going to be created. Its original should be watched very carefully to get almost an exact finger-print shape of the subject. For instance, a dog can be drawn only by adding a few lines on an elongated print to give the shape of an ear and a tail. For a lotus, cut some prints in the shape of a lotus petal and paste it surrounding a round-shaped print and draw the stem.
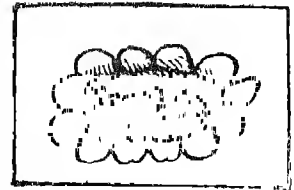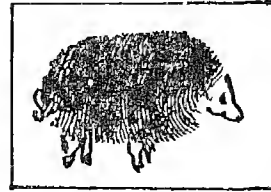
Children are very bold to express their imagination. With a few parallel blue lines, they can draw an ocean. A circle surrounded by some small lines may represent the sun. To them a patch of black colour is night and a yellow circle is the moon. It is always found that they are very firm about the character of their object. They express their visuals in two dimensions, which means they are not bothered about the third dimension, that is, depth. During their first few years of learning they gradually accumulate the knowledge of depth proportion and perception. If the children are guided to use the medium described here, it will help them to create depth, that is, the third dimension can be added to their imagination.
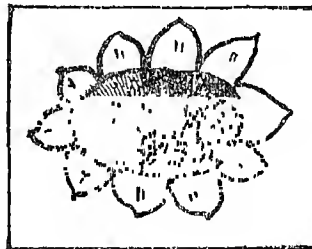
22

THE PRIMARY TEACHER
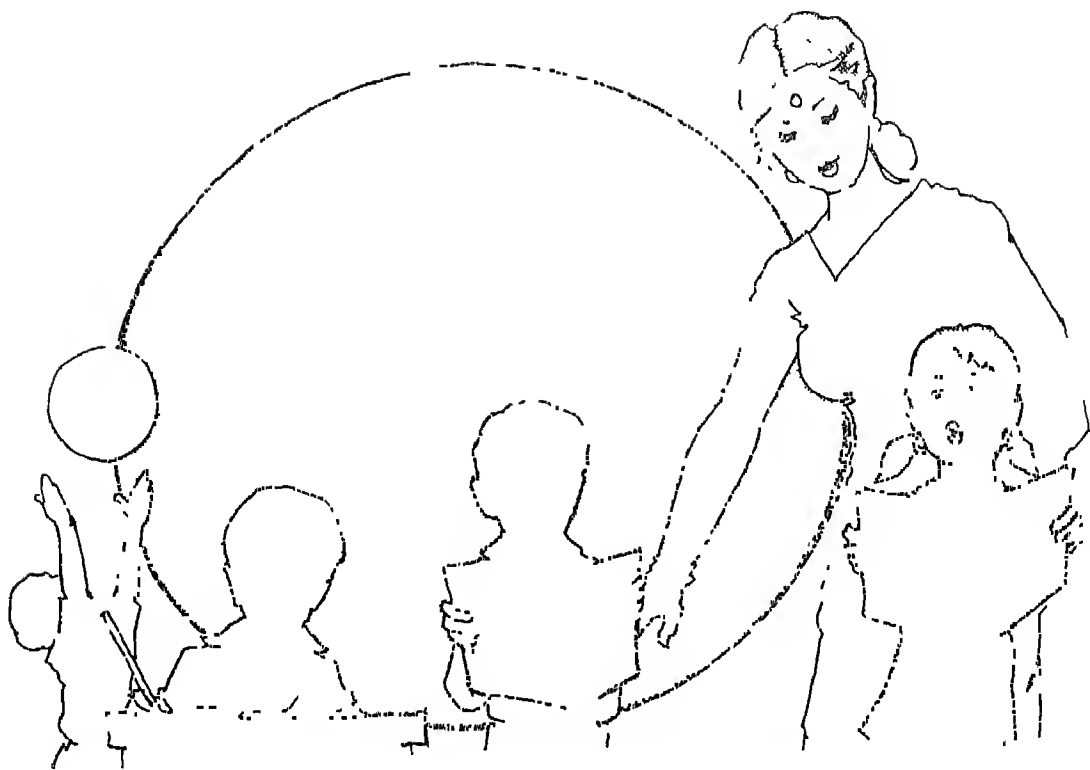
# Universalization of Primary Education

D S. Parihar

DEMOCRACY presupposes the presence of awakened citezenry and for citizens to be awakened properly organized education is the basic requirement The successive Five-Year Plans and the government's present 20-Point Programme have specially focussed attention on this problem

The number of pre-primary and primary schools has increased For those children who somehow cannot attend regular schools, a non-formal approach has been devised Student scholarships have been floated Thus, every attempt is being made to universalize primary

education

## Formal System of Education

There seems to be a need to have a wide discussion on how best to organize formal education Primary educational institutions need to be effectively organized on the lines given below.

## School Buildings

School buildings should be proper and also be maintained well. In rural areas where schools have only two rooms, their number be increased to five. All these rooms should be adequately large and comfortable.

## Equipment

Necessary equipment should be provided according to requirement, e g , black-boards, mats, chalk sticks, number and alphabets chart, chairs and tables, almirahs, drinking water, stationery, etc Schools should be suitably equipped with textbooks and exercise books for use by the students

## Teachers and Holidays

By raising the standard and quality of teaching stagnation and wastage should be removed. There should be admission campaigns and efforts made to retain students in the school In areas where attendance is less than 50 per cent, effort should be made to enrol students by offering attractive programmes and facilities Provision for mid-day meals, reading materials, attendance, scholarships for the poor etc , could be made to make schools attractive places In such areas where agriculture is the principal occupation, students could be permitted to avail of harvesting or sowing holidays This would help remove stagnation. Fifteen days' holidays for sowing or harvesting should be enough. These days could be adjusted according to the location of schools Winter or summer vacations could also be lengthened or shortened according to local requirement

## Non-formal Education

Non-formal centres are being opened for children who leave schools either before the completion of their term or do not find time to go to schools Currently a teacher gets Rs 50,- as an allowance for helping a student complete his Standard V education. With the help of several steps this education could be made even more relevant For students who normally do not go to schools and are in the age-group of 7-18 should be offered reading material specially useful and relevant to life In place of ordinary examinations there should be monthly annual examinations If the students complete a required course for Standard V, they may be issued a certificate of having passed that examination.

Teachers in local formal primary schools should be preferred for appointment in these non-formal centres In case these teachers are unwilling to work in these centres, gramsevaks, or eligible competent villagers could be asked to accept positions in these schools Where graduates or +2 educated persons are not available, as in backward areas, high school pass may be considered for appointment. They should be trained for a minimum period of two weeks in Basic Teachers Training Centres In the night classes proper lighting arrangement should be made. During lean seasons or time of the year when villagers are relatively less occupied, special efforts should be made for bringing them to schools or non-formal centres With the break in school sessions, their coming to schools relapses into illiteracy if no reading material is given to them It is therefore necessary that village libraries should be established as a place for making these semi-literates better literates That is how they would keep a living contact with education and remain informed.

# Development of Self-confidence among Primary School Children

*M L. Kaul*

EVALUATION as a process performs the task of determining the nature and extent of the change in the behaviour of the educand The techniques of evaluation are the means of collecting evidence about the students' development in a desirable direction

It is commonly agreed that personality traits can be easily developed among children during their early years The traits so developed in the child at this stage of his life stay with him for a longer time So, this period of the child's development is very crucial, necessitating proper individual attention The family and the school have, therefore, a major role in shaping the personality of the children, with a periodic assessment of the pace of each child s development

## A Study

These days, there has been a growing realization that the assessment of all-round personality development of the child should be given due emphasis in our evaluation programmes, especially at the primary stage. Keeping in view the above realization, the present author undertook a study of the development of the personality of the children at the primary stage, with the following objectives :

1 To know the extent to which the personality traits of the children are being attended to and developed in our primary schools.

2 To see whether there exists any sex difference in the personality traits of these children

3 To see whether the economic status of parents is in any way related to the development of the personality traits,

4 To see whether the educational status of parents is related to the development of these traits

Using the relevant rating scales as developed and listed by the National Council of Educational Research and Training, the teachers were to rate the pupils in respect of the following three groups of school situational behaviours

I (a) Speak and read confidently
(b) Narrate a strong will
(c) Are not nervous while answering questions in the class

II (a) Work confidently even when alone.
(b) Undertake willingly any responsibility.

III (a) Play boldly different games
(b) Demonstrate newly-learnt physical exercises and games during those periods

Some more tools like toys, attendance registers, co-curricular activities register, game and sports register, class lecture register and students' confidential report record were also used to verify certain school situational behaviours

## Sample Studied

Keeping in view the fact that the behaviour

of the children of the age-group 6-11 would be affected to a considerable extent by the school as well as home environment, it was considered desirable to include pupils from different strata of society in the sample of the present study Therefore, one urban co-educational primary school, with pupils from poor, middle and upper class families was selected for the study, covering Classes I-V with a total number of 150 pupils consisting of 75 boys and 75 girls

students were found to be very self-confident or self-confident The overall picture that emerged was that 58 67% of the total sample of 150 students of the four primary classes were found to be very self-confident or self-confident and 41 33% were rarely self-confident

As to the factor of sex, the study revealed that boys and girls in each of the four primary classes were found to be scoring almost equally in self-confidence Therefore, sex does not

#### Sex Differences in Self-confidence of all the Four Classes

| | Class | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | I | | II | | III | | II | |
| | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls |
| N | 30 | 30 | 15 | 15 | 15 | 15 | 15 | 15 |
| M | 1 922 | 2 022 | 1 989 | 2 268 | 1 895 | 2 095 | 1 615 | 1 788 |
| SD | 726 | 753 | 726 | 610 | 653 | 632 | 449 | .581 |
| Significance | N S | | N S | | N S | | N S | |

### Results

On the basis of the data collected, the results varied from one class to another, as far as the degree of the students' self-confidence was concerned In Classes V, IV, III, and II 80%, 73. 34% and 60%, respectively, of the

appear to make any difference in the development of self-confidence If there were any marginal differences, those could be just by chance and not dependable.

So was the case with regard to the class level variation in the degree of self-confidence of the students, as indicated in the table below

#### Class Level Variation in Self-confidence of all the Four Classes

| | Class | | | |
|---|---|---|---|---|
| | V | IV | III | II |
| N | 60 | 30 | 30 | 30 |
| M | 1 972 | 2.128 | 1 995 | 1 701 |
| SD | 753 | .684 | .649 | 526 |
| Significance | 5 4 | 4 3 | 3 2 | |
| | N S | N.S | N.S | |

Thus, class level also does not seem to influence the development of trait, self-confidence, nor do the month-wise variations show any significant change as in the Table parison to those belonging to less educated families. The percentage in the case of the "rarely self confident" category is highest in regard to those children belonging to the fami-

### Month-wise Differences in Scores in Self confidence of all the Four Classes

| | Class | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | I | | II | | III | | II | |
| | Dec | Jan | Dec | Jan | Dec | Jan | Dec | Jan |
| N | 60 | 60 | 30 | 30 | 30 | 30 | 30 | 30 |
| M | 2.748 | 1.972 | 1.895 | 2.128 | 1.662 | 1.995 | 1.755 | 1.701 |
| NS | 719 | 753 | 536 | 684 | 519 | 649 | 467 | .526 |
| Sign of differences | N S | | N S | | N S | | N S | |

above

If we look at the table below, we find that the educational level of the parents covered under the study had not much signif'cant effect hes whose educational level is below matric

As far as the influence of the parents' economic status on the development of the children's self-confidence is concerned, the

### Educational Level of Father and the Degree of Self-confidence of the Wards

| Educational level of father | Very Self-confident | | Self-confident | | Rarely Self-confident | |
|---|---|---|---|---|---|---|
| | Actual | Percentage | Actual | Percentage | Actual | Percentage |
| B A and above | 9 | 33 33 | 12 | 14 11 | 6 | 22 22 |
| Matric and below B A, | 15 | 38 46 | 11 | 35 88 | 10 | 25 64 |
| Below Matric | 16 | 19 05 | 35 | 41 67 | 33 | 39 29 |

$X^2$ 7 768 (n.s )

on the development of the self-confidence trait among the children However, it does appear from the Table that the children from mediocre educated families and highly educated families are very self-confident or self-confident in com- following Table clearly shows that the percentage of very self-confident or self-confident children coming from families of middle and high income level is much greater than those coming from low income level

Economic Level of Father and the Degree of Self-confidence of the Wards

| Economic level of father | Very Self-confident | | Self-confident | | Rarely Self- confident | |
|---|---|---|---|---|---|---|
| | Actual | Percentage | Actual | Percentage | Actual | Percentage |
| Above 500 | 5 | 29 41 | 7 | 41.18 | 5 | 29 41 |
| 200-500 | 26 | 35.14 | 33 | 44 59 | 15 | 20 27 |
| Below 200 | 8 | 13 56 | 23 | 38 98 | 28 | 47 46 |

$X^2$ — 13 834 Significant at 01 level

The picture, on the whole, that emerges out of the study, strikes a depressing note The major objective of primary education is the promotion of the all-round development of the child And the development of self-confidence is an important part of the total development of the child's personality Therefore, there is a need for a concious effort on the part of both the teacher and the parents to provide the right kind of environment to promote and build up the child's self-confidence.

# Teaching Arithmetic in Primary Schools

SACHIDANAND SHARMA

FROM THE very beginning arithmetic has been taught in primary classes, besides reading and writing The main objective of primary education is not only the teaching and learning of the three R's, but also the development of physical, mental, emotional and social abilities of the child And arithmetic has a positive role in this development process

Why do we teach arithmetic at all? Walters has stated that for those citizens too who are not engaged in any trade or industry arithmetic is a useful subject Arithmetic is a meaningful tool to be used in all walks of life We use arithmetic at all times and almost on all occasions Even as we eat, walk, or buy articles for our own use, we employ arithmetic At higher levels the use of arithmetic is evident in our attempts to reach the moon, scan the skies, span the seas in the construction of bridges, medical training, research, and so on Consequently, we teach arithmetic so that when the child grows up he is able to profitably use his knowledge of this subject wherever necessary.

But now many of us are prepared to believe that this subject is both exciting and edifying. How many of us accepted it as a subject of great interest while we were at schools? It has been noticed that a maximum number of children fail in arithmetic only Because of all these failures it has come to be believed that one needs to have a good intellect for learning arithmetic. We doubt very much the correctness of this belief It can be asserted on psychological grounds that these failures could easily be because of bad teachers or bad teaching of arithmetic

Children start going to school at the age of three This means that a longitudinal study in this area could clear matters However, according to the national policy, children go to school at the age of five It is known that the psycho-physiological development of all children is not uniform Similarly, we also know that the family background of all children is not the same Therefore, we cannot use the same textbook of arithmetic throughout the country On the one hand we want to base education on the principles of psychology and science and yet, in practice, we overlook all of them We get a fair insight into all of these arguments in the books of Piaget (1952). In the teaching of arithmetic we could use some of these principles very effectively

Piaget, while talking of the stages of development, has mentioned five stages through which a child passes. These stages of development are

1  Sensory-motor stage (0-2 years)
2  Pre-conceptual stage (2-4 years)
3. Intuitive stage (4-7 years)
4  Concrete Operational stage (7-9 Years)
5  Formal operational stage (9 onwards)

If we were to examine teaching of arithmetic against the guidelines given above, the teaching

of arithmetic should be minimum in Standard I because the children are at the stage of inner development In Standards II, III and IV arithmetic should be taught with the help of external materials and objects Only from Standard V onwards should we teach abstract concepts. If we really want to improve teaching of arithmetic, we must change our approach to the writing of textbooks in arithmetic

It has been said that until children are ready to learn arithmetic they should not be taught it This means unless children are mature enough to learn it they should not be goaded into learning arithmetic Piaget has demonstrated through his experiments that without a desirable degree of maturation children cannot learn abstract concepts Even we accept the law of maturation, our job does not end here. We shall have to evolve proper goals and steps of teaching arithmetic In other words, we must so evolve our goals that we are able to find out whether or not they have been achieved In fact the gradual graded achievement of these goals should govern our teaching programme We can always find out whether children can distinguish between a square and a rectangle It is necessary to help children learn the basis of these two formations and not ask them to learn the differences by heart. We must prepare definitely distinct goals for each lesson or parts of the same lesson This will help us to evalutate each stage of learning

After we have prepared our goals we should organise our lessons accordingly We should not encourage drawing of figures on the blackboard and asking children to copy them In reality this is what always happens By arrangements of a lesson we mean the constituent parts of the lesson For example, we want to teach $5+1=6$ We can teach it by different sets of arrangements For instance, $4+2=6$, or $5+1=6$, or $1+5=6$, etc. It is necessary to explain the inter-relationships of these numbers and the method of arriving at these additions

In the third stage we can assess the teaching part of the lesson which has been learnt In other words we must assess or evaluate how much has been learnt If the children do not learn, it is wrong to think that they cannot learn arithmetic. The fact is that we teachers fail in teaching it properly This failure could be because of several reasons For example, it is possible we fixed our goals high, or arranged the learning material incorrectly or we did not analyse our lesson adequately Indeed, the best teaching can be performed only with the help of all these techniques put together

The best method of teaching children is the Discovery Approach Under this approach children are divided into small groups They are asked to discover the solutions to the problems within their group They are encouraged to consult each other and also approach the teacher when necessary The group formation is done on the basis of children ability and the nature and complexity of the problems The discovery method is of two types (1) Pure discovery, and (2) Guided discovery The brilliant children could be put in the first category and the less brilliant in the second

The psychologists have laid a great deal of stress on the reinforcement theory of learning On the other hand, according to Skinner, the main defect of modern teaching lies in the undue emphasis on reinforcement However, children should be verbally rewarded for every correct response This kind of reinforcement would help them develop confidence, and they would continue to take interest in learning more The other factor involved in this is the knowledge of one's achievement' principle According to this principle, we must tell children after every week, what and how much they have learnt We must also help them in areas, where they feel they are weak If we fail in organizing our teaching properly, children would naturally lose interest in the subject completely. Hence it is the responsibility of the teacher to make the teaching and learning of arithmetic interesting and enjoyable

# Objective-based Learning Materials : Why and How

S P MULLICK

WE LIVE in the era of accountability in education Any educational method or material developed by us must produce the intended learning outcomes Hence we are concerned with the development of objective-based learning materials only Such a material is designed to produce measurable learning effects in the intended group of children This material has two distinct features It specifies a set of expected behavioural outcomes which will be attained by the child after reading the material It also contains a criterion test to be administered after the learner has completed the material Each test item is designed to obtain evidence as to what extent a particular EBO specified in the material has been achieved by the learner

## Development of an Objective-based Story

An objective-based story entitled "Menace of Flies" was developed with a view to imparting knowledge about the harmful effects of flies and also to develop in the children a negative attitude towards flies, and a positive attitude towards cleanliness to keep the flies away The objectives of the story were as follows ·

(a) to recognise that flies contaminate food and such food can cause cholera and other stomach diseases

(b) to recognise that a suitable medicine can help in the treatment and hence the village health worker or some medical practitioner should be contacted

(c) to list places where flies breed, in or outside the house

(d) to take measures to control breeding of flies and prevention of consumption of food infested by them.

The development of such a story is not a matter of content exposition but is a matter of behavioural guidance The behaviour to be developed through this story was in the affective as well as cognitive zones It aimed to develop negative attitudes towards flies and to impart knowledge about the harmful effects of flies and how to deal with them The first step to write such a story is to write a content outline which will be necessary to develop the story The content which was found suitable for the story was as follows

' Fly is a dirty insect It carries germs with it and when it sits on the food, the germs get deposited on it When we eat this food, these germs go into our system and we get diseases like dysentry, diarrohea cholera, and so on Hence we should not allow flies to breed We should not eat food infested by them. We should keep our house and surroundings clean. We should throw garbage in closed tins We should always keep our food covered How-

ever, if we fall ill by eating food infested by flies, we should consult a medical person and take a suitable medicine and follow precautions as directed by him "

On the basis of the above content criterion test items were developed which consisted of eleven multiple-choice test items These items measured learners' knowledge and understanding of the content mentioned above

As one of the objectives was to develop a negative attitude towards flies and a positive attitude towards cleanliness, it was necessary to develop some instrument to measure the initial feelings and approach-avoidance tendencies towards flies and how he felt or thought about them after reading the story Opinions are one type of indices through which attitudes may be assessed They are the verbal expressions of attitudes. In order to measure the change in the attitude, if any, an opionnaire was developed which consisted of twelve statements of opinion about various aspects of menace of flies in children's environment. The children were required to express their opinions on a five-point scale as mentioned below

(a) Strongly agree

(b) Agree

(c) Neutral

(d) Disagree

(e) Strongly disagree

On the basis of the crucial content mentioned above, a story was developed in which the main characters were Lado, Amai and their friends who were of the age-group of the readers They go to a village 'Mela' where they are tempted to eat "Chat Pakori', being sold in the open and exposed Back home, both Lado and Amai develop severe stomach-ache and vomitting A Lady Health Worker from the nearby health centre comes, examines the children and gives them suitable medicine. She also tells them the cause of their illness and advises them not to eat food exposed to flies, dust, etc She also tells them how to prevent breeding of flies in the house and in the surroundings

In this story the crucial content is not only the information about flies but the unfortunate experience of Lado and Amai and the benevolent treatment of the Lady Health Worker. While reading the story the learner is made to experience the agony of the children, belonging to his age-group He identifies with different characters When one identifies with a character he behaves, feels and thinks as if the characteristics and behaviour of the character belong to him The text of the story consists of about 1200 words The process of identification is more an affective process rather than a cognitive process

In attitude development it is not so much the content in the form of facts, concepts and principles which is important but the way it is integrated in the form of fiction or biographical episodes to arouse attitudinal responses

Conclusion

Written for the children of the age-group 11-14 years, the story was tried out on children of Class VII of the age-group 12-13 years of a Delhi School with most of the students belonging to rural areas

The story proved effective in changing the opinions of the students Most of them strongly agreed that we should keep our houses clean, cover the foodstuffs and should not allow the children to defecate in the open There was, however, no evidence of change in opinions in respect of statements like 'Flies are dangerous, they should be killed' or 'Sweet-sellers should cover the foodstuffs otherwise they should be punished'. These statements have

feeling overtones which need to be dealt in more detail in the story. Fo example, situations should be developed in which killing of flies should be justified to prevent epidemics like cholera Similarly, some plot in the story may be developed on the great havoc that can be caused to a large number of people by the sale of food contaminated by flies On the basis of such a disaster, suitable punishment to the food vendors may be justified

# TEACHERS WRITE
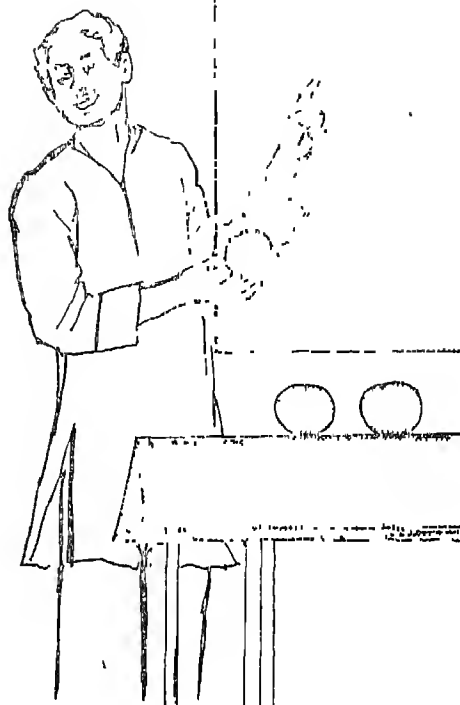
## How to Correct Teaching Lessons

ONCE I visited a class of my school and observed a teaching unit It was a period for teaching mother tongue The classroom arrangement was appreciable and the teacher was busy correcting exercise books of the students

As the teacher was correcting the exercise books, he was at the same time scolding the students for improper use of the words This terrified the students

It is always good to advise and encourage the students but not to terrify them It should appear to them that learning is pleasure. Let them take courage to bring their exercise books to you

All this is possible only when the teachers modify their behaviour and also try to know why do students make mistakes

In my opinion there are, normally, three reasons why students make numerous mistakes They are

1  Little oral exercise of the work
2  Difficult teaching content
3  Carelessness on the part of the students

It is therefore necessary to find out as to

which of these reasons is applicable to the students of class Your personal attention is required for helping them out or else you may not succeed in your work Your corrections alone, without this information will be of no avail Instead your work will keep on increasing

Perhaps you may like to know that corrections are a very individual affair Each student needs personal attention Pointing out mistakes, with discouraging remarks does not help You need to have patience and a positive attitude to discuss the mistakes with the students in a healthy atmosphere

It is possible that you may come across, generally, a mistake or two which are common to all In that case you will have to adopt some other technique. Why not write out those mistakes on the black-board and help everyone by giving the exact form This would enable them to overcome their shortcomings in future as well

In Class IV or above you may mark the mistakes in red ink and not bother to write down the correct spelling or sentence The students at this stage can make the corrections themselves If you have time, give indications as to how these corrections can be carried out

You may also come across students giving wrong expression to their ideas Since it may not be possible for you to correct the conceptual mistakes in the exercise books, the best you can do is to guide and encourage the students to make the corrections themselves We must always remember that no one makes a mistake wilfully

In the lower classes such as Class I, II and III, whenever possible, mistakes should be corrected in full These classes do not have very mature students They need help They are quite capable of rewriting and doing exercises. Inspection of correction work in the class is very helpful Sitting and instructing from the chair is not very advisable

You may also try to make the students feel that you are their well-wisher Scolding or making them stand in the class is not good from the psychological point of view They need your help, guidance and loving care

To ask the students to write down ten times the correct forms of language is a time consuming and wasteful exercise This sort of correction method leads to a dislike for such words On the other hand, mistakes may be corrected by repeated usage of the words in different sentences

The tool of correction has a very important role in the entire teaching learning process Therefore learning and use of proper correction techniques assume special significance in making learning easy and enjoyable

GOSWAMI RAM BALAK
*Headmaster, Gyan Kunj, Dedhpura*
*Bihar*

# NEWS AND VIEWS

## Most Rural Kids have Schools within Easy Reach

ACCORDING to the Fourth All-India Educational Survey, published by the NCERT, there are 4,74,636 primary schools in the country, of which 4,31,602 (90 93%) are in rural areas.

The number of rural habitations identified in the country is 9,64,664, of these, 4,51,457 (46 80%) have primary sections in them and another 3,22,541 (33 44%) have primary sections within a walking distance of 1 km. In other words, 7,73,998 (90 24%) habitations are having primary schools/sections either in the habitation itself or within a walking distance of 1 km Amongst the rest 65,987 (6.84%) habitations do not have primary sections even up to a distance of 2 km

In terms of population, 78 53% rural population is served by primary sections in the habitations of residence and another 14 29% by primary section up to a distance of 1 km, that is, 92.82% rural population has either primary sections in the habitation of residence or within a walking distance of 1 km. But 2 15% population is not served even up to 2 km.

### Schooling Facilities in Habitations Predominantly Populated by Scheduled Castes

In this Survey data on the availability of educational facilities for habitations predominantly populated by Scheduled Castes have been collected Habitations in which the Scheduled Caste population constitutes 50% or more, have been classified as 'habitations predominantly populated by Scheduled Castes'. The number of such habitations identified in this Survey is 69,038 with a population of 2,32,19,446. Of these, 21,799

(31 58%) habitations have primary sections in them and 53,823 (77 96%) (including those having primary sections in them) are served for primary stage up to a distance of 1 km, 4,317 (6 24%) habitations do not have primary sections up to a distance of 2 km.

In terms of population, 62 40% population in these habitations is served by primary sections in the habitation of residence and 88.94% is either served in the habitation of residence or within a distance of 1 km 2 74% population of these habitations is not served up to 2 km In respect of availability of primary schools within the habitation, these habitations are comparatively worse than the other habitations but for categories up to 1 km and 'up to 2 km' the percentages in respect of both types of habitations are more or less the same

### Schooling Facilities in Habitations Predominantly Populated by Scheduled Tribes

In this Survey, data on the availability of educational facilities for habitations predominantly populated by Scheduled Tribes have been collected. Habitations in which Scheduled Tribes constitute 50% or more population have been classified as habitations predominantly populated by Scheduled Tribes'. The number of such habitations identified in this Survey is 1,53,778 with population 3,89,35,399 Of these, 58,519 (38.05% habitations have primary sections in them and 68 52% habitations have primary sections up to a distance of 1 km 16.55% habitations do not have primary sections up to 2 km

Population-wise, 63% population in these habitations is served by primary sections in the habitation of residence and 82 99% is served up to 1 km, 8.3% population is not served even up to 2 km The percentages of habitations and population served for primary stage up to various distances are far less than corresponding percentages for 'all habitations'.

*State-wise Analysis of Schooling Facilities*

From the Survey data, it is obvious that in many States and Union Territories a situation of nearly universal provision of schooling facilities has been achieved In Gujarat, Haryana, Manipur, Nagaland, Punjab, Chandigarh and Delhi more than 98% of the rural population is served within a walking distance of 1 km Among the States, Punjab has the highest percentage (99 72%) of population served up to 1 km and Sikkim the lowest (64.34) followed by Himachal Pradesh (71 54) Among the Union Territories, Chandigarh has the highest percentage (100 0) served up to 1 km and Arunachal Pradesh the lowest (60 69) followed by Mizoram (74 63)

*Pupil-Teacher Ratio*

For the primary stage the overall pupil-teacher ratio for the country is 41. Rajasthan has the highest pupil-teacher ratio (59) and Manipur the lowest (17). In Andhra Pradesh, Gujarat, Karnataka, Rajasthan and Dadra and Nagar Haveli, the PTR is 50 or more. Other States and Union Territories having pupil-teacher ratio more than 40 are Bihar, Kerala, Maharashtra, Punjab and Tamil Nadu

*Enrolment in Classes I-V*

In Classes I-V the total enrolment is 6,86,02,224 as against 6,09,97,820 in the recognised schools at the time of the Third All-India Eucational Survey (1973). The enrolment in Classes I-V has gone up by 12 47% during 1973-78 Girls constitute 38 27% of the enrolment

*Girls' Enrolment*

There are 2,62,51,230 girls in Classes I-V and they consitutte 38.27% of the total enrolment in these classes. The corresponding percentages for rural and urban areas are 36 18 and 44 72, respectively The percentage of girls in Classes I-V was 37 73 at the time of the Third All-India Educational Survey (1973). The percentage of girls has gone up in all States and Union Territories except in Madhya Pradesh, Chandigarh and Delhi during 1973-78. Among the States, Meghalaya has the highest percentage (49 33) and Rajasthan the lowest (24 33) In Kerala, Meghalaya, A & N Islands, Chandigarh, Delhi, Goa, Daman & Diu and Mizoram the girls percentage is more than 45 In rural areas, in Bihar (27 54), Haryana (30 09), Jammu & Kashmir (31.07), Madhya Pradesh (28 07), Rajasthan (19 04) Uttar Pradesh(28 25) and Arunachal Pradesh (31.61) the percentage of girls is less than the corresponding percentage for the country In urban areas, the percentage enrolment of girls in Bihar (40.01), Gujarat (44.63), Madhya Pradesh (42.84), Nagaland (44 03), Orissa (43 90), Rajasthan (38.84), Sikkim (43 95), Uttar Pradesh (41.51) and in Arunachal Pradesh (38 78) is less than the corresponding percentage for the country. In all the States and Union Territories, except Nagaland, the percentage of girls' enrolment in urban areas is higher than the corresponding percentage for the rural areas.

# Handbook for Primary Mathematics

THE Department of Education in Science and Mathematics (NCERT) organised a workshop for the preparation of a teacher's Handbook for Primary Mathematics (Classes I-V) from October 4-7. Thirty participants, including subject specialists, method masters and experienced teachers attended the workshop along with six faculty members.

The workshop prepared material for the first draft which included objectives, teaching-learning principles, important suggestions for motivation of children, oral work and drill in mathematics Two sample units on teaching of numbers, teaching of fractions and decimals were

also prepared Supplementary materials such as historical information, puzzles, thought questions, recreation mathematics were also procured from various sources

# Workshop in Environmental Studies

A NUMBER of key persons from Manipur, Haryana, U P., Assam, Delhi, Rajasthan, Punjab and Bihar attended an orientation workshop for key persons in environmental studies at the primary level Meant for the northern and eastern regions, it was held at Allahabad in October 1982

The objective of the DESM workshop was to orient the participants in the teaching of environmental studies so that they could organise in-service training programmes in accordance with the specific needs of their region They worked on model activity sheets in environmental studies and developed activities on syllabus units of Classes III-V

# Ninety-five Oriented Under Pecr Project

A SERIES of programmes for the orientation of the state primary curriculum development cells (SPCDCs) and supervisory ITIs were organised in October 1982

Ninety-five participants from various states attended the orientation programmes in environmental studies and health education, languages mathematics, SUPW and creative expression

The programmes focussed mainly on the role of supervisory TTIs and difficulties in effective implementation of the Primary Education Curriculum Renewal (PECR) Project, teaching-learning strategies, scheme of evaluation of pupils, development and scheme for try-out of instructional materials

# Educational Archives to be set up

YET another boon to researchers in education would be the 'Educational Archives' that NCERT is setting up The archives will be equipped with systematically documented material related to education in India This, it is expected, will promote basic research studies in different aspects of national education

Photo and Zerox copies and micro films of documents will be procured and indexed under the guidance of the National and State Archives and National Library

"Educational Archives" will collect documents on every possible aspect of education It will be equipped with documents on the principles and policies adopted since 1854 legislations, reports and recommendations of commissions and committees, resolutions of important public organizations, and private papers dealing with the subject

# Evaluation for What ?

VERY few teachers understand that evaluation of students' performance in examinations should have an integrative approach to improve their learning and growth To most of them evaluation means 'passing judgement on students' achievement and comparing their performance with respect to determined criteria or expected level of performance This approach exerts a negative impact on children, particularly those at the elementary stage Repeated failure or under-achievement discourages them to the extent of developing negative self-concept.

Dr. Pritam Singh's study 'Evaluating Students in Elementary Schools' brings forth a candid appraisal of the present judgemental system of evaluation and argues for its replacement by a systematic and scientific one which can encompass the whole range of child's growth.

A happy combination of theory and prac-ce of reform, the study assesses in general the uality of instruments, the role of various tools nd techniques of evaluation and their relevace to various intended learnings. It also proviçs a growth-oriented model of evaluation. It nderlines the need for stating instructional bjectives in operational terms

To put theory into practice, the study spells ut steps as to how policy statements on evaluaon can be formulated and strategies worked ut for the implementation, diffusion and dissemination of evaluation reforms. It also particularly provides some guidelines for the development of plan action to achieve reforms at the elementary stage

The Government of India has recorded elementary education as a priority area in the Sixth Five-Year Plan and all-out efforts are being made to achieve universalisation of elementary education in the next ten years. In the light of this it is hoped that the state agencies and teachers in general will find the study useful as a practical guide for evaluating their students' performance

# SCHOOL SCIENCE

Published by the National Council of Educational Research and Training, *School Science* is a quarterly journal of science education

*School Science* is an open forum for discussing science education in our schools, its problems, prospects and individual experiences of teachers and students

Besides the educational aspect, *School Science* contains a stimulating feature—Science News, which introduces the frontiers of science to the teachers and curious students Among other regular features, *School Science* presents profiles of famous scientists.

We invite the practising teachers and their students to present their problems and findings in the pages of *School Science.* There is a section reserved for the students, where they can communicate with teachers and students in other parts of the country.

*School Science*, you will notice, is meant both for the teachers and their students. It is meant to make learning and thinking a joyous process And the most important thing is your participation in it

Regd. No. 28935/76

## CONTENTS

# Readers' Greater Participation Invited

We invite our readers — the primary teachers — to contribute to this journal profusely We are interested in pictorial features and illustrated articles written by practising primary teachers. The articles / features, clearly typed out in double space on one side of the paper only, should be sent to the General Editor, *The Primary Teacher*, Journals Cell, NCERT, NIE Campus, Sri Aurobindo Marg, New Delhi 110016.

# Pollution and the Comforts of Life

POLLUTION OF atmosphere has increased several fold in the past few decades. Man is bent upon commiting suicide by creating more and more problems. True, we have more material comforts today than ever before Even the greatest emperor in the past did not have air conditioning, motor cars, planes, rockets, tanks and multi-storeyed buildings He used no power plants to generate electricity and needed no computers to help himself compute his income. He used musicians and drumers to entertain himself, besides announcing his orders An average person today has more machines which provide him with the comforts an emperor in the past could not have dreamt. But we overlook the fact that machines have polluted our atmosphere by generating electricity, driving cars, mechanising farms and regulating and misusing rivers We know very little of the damage we are causing to ourselves and to our lives These so-called comforts have been provided to us at the expense of our atmosphere If aeroplanes give us speed in journey, they spoil the atmosphere around the earth If electricity gives us power to run refrigerators, air conditioners and the like, the smoke from power-generating plants gives us diseases like asthma, cough, nasal troubles, eyesores, etc.

Similarly, if loud-speakers give us the pleasure of carrying sermons, they pollute the air and spoil the noise balance in terms of decibels and result in partial deafness, headaches, insomnia, etc.

It is true we cannot get back in time. Used as we are to the comforts given to us by inventions in the field of science, we might as well try to regulate pollution and help control diseases which pester our lives An entire new approach to teaching is becoming a necessity Both in content and methods we must come close to what we have and what we have lost. This is perhaps the best tribute education can provide to comforts we seek from science. We are on the threshold of space age in which laser, rackets, missiles, sun and weather are being increasingly considered more as weapons of waging wars than providing comforts to human life Let us seriously think what we are doing to ourselves and to the world we live in Let us think once again that the earth we inherited is not being used for killing life but enjoying the bounty of nature. We would live and live in comfort but not at the expense of nature which can, in revenge, kill us, too

*R. P. Ray*

# Creative Technology for School Children

YURI STOLYAROV

ANYONE who has had any experience of creative technology, even if it was some time ago, will not have forgotten the incomparable feeling of inspiration and discovery, even if what he discovered had long been commonplace and was new only to him. The discovery was his own, rather than a stock commodity prepared by someone else.

Creative engineering is a small but crucial step in the development of technically minded young people, and has started many prominent designers, inventors and scientists on the climb to the pinnacles of modern science and technology

## The Beginning

The origins of creative technology for children in the Soviet Union lie in the immediate post-revolutionary period In the early 1920s, units of Pioneers, and subsequently Pioneer posts comprising several units, were set up at factories and works, usually on the premises or in nearby workmen's clubs Their leaders were most often public-spirited young workers

All this helped to introduce the Pioneers to technology. Would-be engineers were given backing by their elders instruments and

materials were acquired, and experienced and knowledgeable instructors were recruited. The first Pioneers' magazine, *Baraban* (The Drum), and then first newspaper *Junyi Spartak* (Junior Spartacus), fostered an interest in engineering by constantly publishing technical descriptions and blueprints of individuals' work and discussing techniques Each unit or post invariably had technically minded children who came together and looked for ways of carrying on their hobby That was the origin of the first engineering interest-groups

As the Pioneers' organization grew and developed, regional and city Pioneer clubs and societies with engineering workshops and full-time instructors began to be established Moscow's Pioneer societies for example, had 3,000 active members in engineering groups and workshops as early as 1923 In 1922-25, under the influence of Lenin's electrification plan, the growth of electrical-engineering groups became a widespread phenomenon Of course, like all children then engaged in technical work, these young electrical engineers were constantly short of the most essential materials, instruments and parts, industry itself was critically

short of them And yet this rough-and-ready creativity produced future designers, inventors, industrial innovators, leaders of industry and science

At the start of the 1920s, a mass movement for the development of Soviet air transport was launched, and a voluntary Society of Friends of Civil Aviation was formed for purposes which included the popularization of aircraft engineering and the training of aircrew This new branch of engineering was eagerly taken up by Pioneers and schoolchildren, who became passionate aviation enthusiasts In junior aircraft-modelling groups, children were to build hot-air balloons box-kites, paper gliders and simple model aircraft All these were to become a regular feature of Pioneer camps, while aircraft modelling itself became one of the most popular and widely practised forms of creative engineering among children At the same time, large numbers of children and adolescents turned to amateur radio communication

In October 1926, the Central Bureau of the Young Pioneers established the country's engineering centre, a new kind of establishment whose leaders were well aware that its strength would derive from organizational work and availability to children as a whole The first step was to hold exhibitions of models made by children and to organize courses in aircraft modelling, electrical and radio engineering and photography Advice was widely available both orally and in writing, the work of junior engineers was on permanent exhibition, and debates on points of technology were organized The driving force behind the establishment and operation of the centre was voluntary effort by Komsomol and Pioneer officials, engineers and technicians, and a small number of professional teachers.

In the 1950s and 1960s, radio engineering, automation, cybernetics and bionics emerged as the chief centres of interest in the Soviet junior technologists' movement Many of the activities were of benefit to society, being directed to applying the young technologists' work to the national economy, and that trend remains paramount today, though quality and scope are now greater Many junior technologists are now fully qualified members of the All-Union Youth Movement for Scientific and Technological Progress, and do all they can to contribute to industrial and technological development

Junior creative technology is now rightly seen as the best training for technology specialists and the first step towards the world of big machines, high speeds and powerful forms of energy. This training, which has stood the test of time, is an integral part of the whole combined state and voluntary system of creative technological education for children and young people

What shape does that system take in the USSR today? The nature and the work done in technological groups depends on the member's age, training and interests Primary school children are usually interested in all kinds of machinery, so that technical modelling groups at that level build very simple model aircraft, ships, vehicles or rockets under the instructor's tuition Slightly older school children develop an interest in amateur radio, electrical engineering, electronics and various types of competition models Senior school children are more attracted to the genuine designing of vehicles of all kinds and to industrial training experiments Helped by engineers and scientists, they often do substantial original work in efficiency engineering or research for industrial or other organizations Young people aged 14 to 17 take a keen interest in the design and building of very small-capacity vehicles, mini-motor-scooters, boats, motorized sledges, hang-gliders and gliders. Children in country districts are drawn to the design and construction of small-scale agricultural equipment, which is used to cultivate the school's farm or agricultural training plot. The results are

visited the engineering clubs of the Man Junior Technologists' Centre. The director, Semen Ivanov, a passionate advocate of creative technology for children, told us about the centre which he had directed for almost forty years, and about the children, many of whom since leaving school manage factories, pilot aircraft or ships, or build towns He also had interesting things to say about the junior engineers of today

Perhaps the models which the children built could not be called inventions, but they undoubtedly were imaginative They could of course build long-tried-and-tested models, but at this centre, that was not the case Only original models could be built, and that unwritten rule might well explain the many genuine inventions made by the school children of Man

There might appear to be no place for innovation in ship-modelling, hydrofoils being by no means new But there, too, invention flourished For instance, the children decided to build a ship unlike any other in the world First of all, it was to have jet engines, to give the fantastic ship an enormous speed This in turn meant that the shape must also be subordinate to the need for speed They wanted the hull to be raised above the water, not on hydrofoils, however, on something different —fins, perhaps. The ship was to be modelled on a fish! One of the fastest of fish, a shark So, they gathered pictures of all kinds of sharks, examined them as a group, and chose the most attractive one—the tiger-shark Its powerful tail was then model for the ship's rudder, while the hull was to house jet engines taken from model rockets The long streamlined body was the epitome of speed, and the fins would raise the ship out of water like hydrofoils. And, though it has not yet been built, the determination of its young designers is such that no one at the centre has any doubts on that score

On one occasion, the centre was approached by the stall of a poultry farm, and asked to design an appliance for simulating sunset in the poultry-houses Electrical lighting had long been in use 'to extend the day' at the farms, and the poultry had been laying better for it However, they still needed to sleep, and if the light was abruptly switched off, they all stayed on the ground unable to find their perches in the dark The farmers had tried using rheostats, but that was not always convenient or safe The radio-electronics club devised a simple and reliable instrument consisting of a liquid rheostat, a time relay and a power-supply unit This simulated sunset perfectly, and the poultry started settling peacefully down for the night

Several of the children's inventions have medical applications For instance, they have devised a 'correctophone' which can help in correcting speech defects Their 'electrosleep' device induces anaesthesia in patients prior to operations Again, an original medical thermometer has been designed which enables the body temperature to be measured instantaneously It makes use of the fact that the resistance of a thermistor varies according to the temperature The same principle was used in a soil thermometer demonstrated at the recent exhibition Many of the devices developed by the junior engineers of this small republic are readily adopted in industry and agriculture

In most of the junior technologists' clubs financed by the trade-union committees of major firms, the instructors are engineers and technologists who like working with children These centres are usually located in districts where the employees of a given firm live, but they are open even to children whose parents work elsewhere Furthermore, there are tens of thousands of technological interest-groups and laboratories at trade-union cultural centres and at general clubs which also have children's sections.

For intermediate and senior school children, the clubs establish interest-groups in the most

advanced branches—electronic engineering, automation or radio engineering, according to the speciality of the parent enterprise—since their chief purpose is to train skilled staff for the factory. The junior technologists' society at the Magnitogorsk Iron and Steel Works, for example, has a junior metallurgy laboratory where the children not only build model rolling or blooming mills and other equipment, but even smelt metal themselves. Of course, both the equipment and the production processes are miniaturized. The club of the Donetsk Heavy Engineering Works has a junior engineering laboratory where school children model the parent factory's machinery. The children work on the same problems as the factory's invention-and-efficiency engineering office, and have obtained several patents for their improvements to industrial equipment.

Exhibitions of children's creative technology are held yearly in the Soviet Union at regional, urban and national level. The best work is rewarded by diplomas, prizes, medals from the USSR Economic Exhibition, by valuable gifts or travel vouchers to the All-Union 'Artek' Pioneer Camp on the Black Sea coast, or by foreign travel. Work by Soviet junior technologists has been exhibited in Washington, Osaka, Budapest, Montreal, Paris, Brussels and elsewhere, and is invariably appreciated by visitors to the exhibitions.

Two specialist magazines are published for children attracted to creative technology: *Modelist-Konstruktor* (Model-maker and Designer) and *Junyj Tekhnik* (Junior Technologist), which have a total monthly circulation of over 3 million copies. In many towns, specialist shops have opened where children or their parents can buy instruments or materials for building models and appliances at home.

The Soviet Union's voluntary system has become a training-ground for children, preparing them for creative work in industry, technology and science. Many inventors, efficiency engineers and industrial innovators followed that path. Creative technology is rightly regarded as one of the most effective ways of ensuring children's general development and providing them with vocational and polytechnical education.

# Education of the Disabled Child

R. P. Singh

*Professor of Education*
*National Council of Educational*
*Research and Training, New Delhi*

THE DISABLED in any society are an established fact Time was when we did not realize that unless these people were helped, they would become an avoidable burden on our nation's economy Also, we failed to appreciate that they could also be helped to become useful members of our society Fortunately, things stand changed and it is being universally realized that something ought to be done for these people. We have already shifted from our original viewpoint in which pity and sympathy for the unfortunate predominated. With this welcome change, we can now think along positive lines for bettering the lot of these otherwise good human beings

As we know today, of the total 450 million disabled persons in the world, India's share is some 60 million people which is roughly ten per cent of the total Indian population This large chunk of Indian population stands segregated and is allowed to participate in the formal system only on compassionate grounds

The major problem with the education of this group is that people generally regard these people as uneducable. The fact is that there are several types of disabilities which do not interfere with learning normally There are others which can be overcome with the help of such mechanical aids as aids of hearing, speech, etc This fact is generally overlooked

The other problem pertains to the attitude of people as a whole In India everything is supposedly to be undertaken by the government. We believe that all activities which fall under the category of 'social service' is a government responsibility. True, there are several voluntary organizations which take upon themselves these obligations But then the scope of their activities and finances does not permit them to provide educational facilities on the scale needed Therefore, it is unfortunate that the provision falls short of the real requirement. It is now generally felt that government alone cannot do everything Voluntary effort is therefore more than welcome. Besides the existing facilities, a lot more needs to be done. People should realize that they alone can help themselve

The third problem is that of the kind of approach to the entire question of a disabled person Like any other normal person, a disabled child also has a personality of his own He, too, needs to be respected Indeed, he demands esteem from people It is merely a quirk of Nature that a child is disabled He may as well have

been a normal person but for his poverty, malnutrition or neglect in the early formative years. For instance, blindness could easily be due to shortage of vitamin A in one's diet. The tragedy of blinds was avoidable but it so happens that it is there. Does that mean the fault is child's?

People need to be educated about the causes of one's disability. They also must be informed about the type of help they can be given and the facilities offered so that at least what could be easily rectified can be set right. What we need, therefore, is an infra-structure of a vast publicity campaign. This publicity should be carefully planned and properly executed. We must remember that disability is mostly a product of ignorance, poverty and lack of timely help. It is possible, besides being desirable, to alleviate some of the misery one has to undergo due to lack of this information or education about the disabled.

A lot has been done for these disabled in advanced countries. They have provided special classes for those disabled who cannot be accommodated in normal classes. For the ones who can receive education without trouble are given an occasion to behave normally with the average normal, healthy children. In fact countries like the USA or the USSR have enacted laws for their benefit. This then is the position of the advanced, rich countries, but the poor countries like India cannot emulate this example. The government alone cannot do everything. The voluntary organisations must also come forward.

It is now a well-known fact that the majority of disabled people come from urban slums and the poverty-stricken sectors of rural areas. Among these disabled persons a large chunk of them could easily have been normal but for the lack of information about preventive measures. Against this background it is only too natural that we thought of assigning a positive role to schools in these areas.

## The Disabled and the School

The school as we have seen, is a social institution meant to serve people. It has both an educative and a curative role.

In the urban slums and rural areas the school teachers can arrange to receive posters from government departments for the education of their locality. An energetic teacher, with the help of para-medical personnel and village level workers, can arrange meetings on the school campus about the causes and prevention of physical disabilities. In his own class he can adopt a sympathetic attitude toward these unfortunate beings— mostly victims of circumstances. In the essays to be written by children the teacher can assign topics like

(1) Vitamin A and Blindness
(2) Helping the Blind
(3) Who is a Disabled Child

In normal classrooms children with speech defects and physical disabilities can be accommodated without much difficulty. Where possible, mid-day meals could be arranged for the very poor children suffering from disabilities and malnutrition. In fact, malnutrition can be avoided with the help of the local rich and government and voluntary bodies. In several states in India mid-day meal is being given to children. This is a welcome feature and needs local support alongside government encouragement.

In schools where electricity has reached, school rooms can be lighted. Children with bad eyesight can sit in the front rows. Similarly, these children who lack normal hearing can be easily helped. They can sit in the front rows and sometimes receive aids for hearing through voluntary donations. Care must however be taken by the teacher so that these children do not become a cause for bickerings among other normal children. In no case should the disabled be allowed to feel that he is someone

to be pitied upon. In fact all these steps are possible to be undertaken by energetic and socially conscious teachers. We therefore assume that only a few teachers can appreciate this problem and stand up to help. In such teachers alone lies our hope.

---

# United Nations Declaration

*The Right*

* to the same fundamental rights as other human beings, the right to enjoy a decent life, as normal as possible,

* to respect for their human dignity,

* to the same civil and political rights as their fellow citizens,

* to measures enabling them to become as self-reliant as possible,

* to medical, psychological and functional treatment, rehabilitation and placement services to help develop their skills, hastening their process of social integration,

* to economic and social security, providing them with a decent level of living. To work according to their capabilities in a useful, productive and remunerative occupation,

* to their special needs in all stages of social and economic planning,

* to live with their family and participate in all social, creative and recreational activities. In the case of persons requiring special establishments, their environment and living condition shall be as normal as possible,

* to protection against exploitation and discrimination,

* to legal aid;

* to enjoy these rights, regardless of race, colour, sex, religion, nation, and social origin.

---

# Teaching-Learning at School :
# A New Approach

KAILASH CHANDRA BANSAL

*Principal*
*Government Basic Training Institute*
*Pachmarhi, Madhya Pradesh*

'CHANGE is as inevitable as the morning Sun" Rapid advancements and drastic changes are expected to occur in our society Forces of change in our society are so powerful and essential that remaining static is nearly impossible

The challenge is particularly serious one for educators since the adults of the first half of the 21st century are already at school today and the teachers now being trained would still be teaching then, preparing the adults of the second half of the next century The question of the future prospects in education is thus no more an intellectual game but a major responsibility for the organization The philosophy as summed up by Cyril Dalais can be stated simply

"The school must be child centred, catering to the child's needs at a particular age, not to the convenience of the teacher Learning must go hand in hand with the child's own development and it must be active Subjects should not be compartmentalised They should be integrated The key concept is 'PLAY', but play with a purpose"

'Most learning is not the result of instruction. It is rather the result of unhampered participation in a meaningful setting' (Ivan Illich) It is the child who learns The teacher provides the environment for his learning You cannot force the child for learning. He learns according to his own needs and pace. One should be interested to give the child a right start

A Chinese proverb says 'Give a starving person a fish, and he will be satisfied for a day Teach him to fish and he will never be hungry again' This should be the motto of teacher training institutions in respect training pupil-teachers in preparation of teaching-learning aids The teachers should be trained to prepare their own kits or teaching aids, as and when needed

## Background

A survey conducted by the NCERT shows that out of a total number of 4,74,000 primary schools in the country, 1,64,000 schools (34%) have only one teacher and in 1,29,000 schools (27%) there are two teachers

It clearly shows that there is no solution to the problem of multi-classes to be held in a

village house or verandah with the total enrol-
ment less than 45, with only a single school
teacher. Even in schools where there are two
teachers and five classes, a teacher has to take
multi-classes. The problem to engage all the
students of different classes, all the time in
academic activity is faced by these teachers
with no possible solution.

## The Project

In the State of Madhya Pradesh, sub-schools
were opened with only one teacher to teach
students up to the third standard at his own
residence. The sub-school teachers under train-
ing faced the problem of teaching three classes
at a time. They experienced that while they
were teaching one class, other two classes used
to play which was not of any educational use.
If *play with a purpose* could be the theme of
sub-schools, it would be more practical and
educative.

Hence, a project was finalised for the pur-
pose of training elementary school teachers in
preparation of self-learning kits for multi-class
students, by integrating craft with socially
useful productive work. Using the problem-
centred, action-oriented approach, the project
was designed with the following objectives

1   To train pupil-teachers in preparing
    teaching aids-cum-self-learning kits for
    use by students for intellectual develop-
    ment, which is the major responsibility
    of schools

2.  Use of available waste material like
    card-board boxes, tangled pieces of
    strings, redundant twists of wire, bottle
    tops, old tin canes. etc., as a treasure
    for an imaginative teacher in search of
    fun

3.  To give opportunity to the students
    "to play and learn" at their own indi-
    vidual speed

4   To develop in pupil-teachers the quality
    of self-help in designing and pre-

paration of mass media in classrooms
resulting, at a later stage into self-
learning kit toy library in the schools
as is being done in Mauritius

5   To enable the pupil-teachers to remove
    inequality of opportunities of learning
    between the rich and the poor and
    between formal and non-formal
    schools

6   To develop and evolve some methods
    to improve the standard of students
    who may be classified as "educational
    underclass". The policy of automatic
    promotion of students from grade first
    to second and from second to third
    has resulted in the increasing number
    of students who cannot read and write
    though they are students of grade three.

## Scope

"There is of course a gap between the
idealised picture of what should happen and
what really happens." Restricting the scope
of the project to "Paper and Cardboard work",
a teacher-trainee was supposed to prepare 12
items, including :

1   Decorative items, teaching material,
binding of a book, binding of a register and
other useful items

Rather than providing a list an effort was
made to illustrate how teachers were to relate
their selection of methods to achieving parti-
cular objectives or content coverage or skill
development. They were not free to use other
articles while neglecting cardboard/paper

2   During teaching practice the pupil-
teachers had to teach classes with 40 to 50
students, whereas the project of self-learning
kit was for a smaller group

3   Only articles with good finish and get-up
and proportionately appropriate were submitted
under the work experience subject, neglecting
higher educational value of some of the crude
looking articles

4 The pupil-teachers have to offer two subjects for teaching in one session and have to teach Classes I to V. This wide range rendered maintaining continuity in learning situations and also preparing learning kits unit-wise in each subject. So there may be a 'Mosaic" pattern of green spots amidst the otherwise arid desert.

5 'Productive work in education means actually useful activity, 'not necessarily in return for remuneration, and 'work should be relevant to educational goals ".

6 The main thrust of work experience was on the production of articles, their saleability and profit. Socially useful productive work may be described as purposive, meaningful, and manual work resulting in higher goods or services which are useful to the community (Here community is the students).

## Procedure

*1. Motivation of Pupil-Teachers :* During the session, the pupil-teachers visited a number of practising schools, observed teaching and learning situations, had interviews with senior teachers, saw workshops under the Kishor Bharati (Hoshangabad Vigyan) project and felt the importance of the play-way method through tutorial classes. Having faced the problem of teaching multi-classes without any aids, they were motivated to participate in the project.

*2 Kits Prepared* The objective was 'Each one-Teach one' Every kit must be used in learning atleast one concept. They had group discussions and had suggestions from method masters as and when needed.

*3 Project Library Card ·* A Project Library Card was planned and supplied with four copies each to be filled in by the pupil-teachers, which provided an opportunity for an indepth study of a topic/theme/concept. It provided them with an opportunity to think about teaching points also.

*4 Self-assessment* Each pupil-teacher ex-hibited his material to the poor group and the utility of each article was discussed to finalise the selection of the best articles to be submitted with project cards, for assessment by a team of examiners.

5 *Try-out of Kits* During the last programme of teaching practice in local schools, the kits were tried out for self-assessment by the pupil-teachers and to ascertain their usefulness and the need of improvising them as per actual life situations.

6 *Submission* They submitted the kits with relevant project library cards for final assessment with other articles made under the work experience subject.

The pupil-teachers were now prepared for the viva voce also.

7 *Feedback* At the close of the session the pupil-teachers were asked to fill in and return a feedback response sheet.

## Achievements

Some of the articles prepared were as follows :-

*1 Dice* Made of wooden cubes having fraction numbers, (1/4, 1/2, 3/4) and having decimals (0 2, 0 4, 0 6, 0 8), along with whole numbers. It was designed to be used for teaching arithmetical fundamentals of addition when playing games like revised snake-ladder.

*2 Triangles* Made of cardboards of different sizes and angles, to be fitted in squares, polygones, circles, etc, to be used for teaching the concept of area of different kinds of figures in mathematics.

*3 Chess Boards* Made of card or ply-boards of different figures, letters, of many sizes with different numbers of columns and rows, e.g., 4×4, 6×6, 8×8, 10×10, with letters and figures to be used for counting, multiplication tables, adding and finding missing figures and even for knowing new mathematics. Cut-outs of alphabets be set to form words with or without 'Matras' already painted if needed.

*4 Tram* Made of match-stick boxes with

painted numbers to be arranged in the shape of train in ascending order or tables of multiplication and then to be copied down on slates for practising numeracy.

*5. Mathematics Box* Made of cardboard —in big size, scale, set squares, compass for demonstration on chalkboard.

*6. Watch .* Made of cardboard with two arms of different sizes to teach hours, minutes, days, addition, substraction, etc

*7 Boxes .* Made of cardboard as saving box, letter-box, peepshow case, semi-circular stages, for teaching how to write addresses, and for inculcating interest in social studies, arranging shows, etc

*8 Cut-outs ·* Cut-outs of a rubber tube in different shapes of figures, letters to be arranged as suggested, cut-outs of pictures to be arranged to complete stories, to develop imagination, and to tell and write a story for language proficiency. Cut-outs could also be used as rubber stamps after fixing them on wooden blocks

*9 View Master ·* Made of a wooden case with a glass window with rolls of papers having pictures, arranged to explain a concept or a theme, e g., good habits, rich food. Two moving rolls, one with a transparent roll with 'Matras' to be super-imposed on letters to teach language was most attractive and useful This may be called "Roll Theatre" It could be horizontal or vertical.

*10 Masks :* Made of card sheets painted and cut in shapes of domestic and wild animals, birds, historical heroes, to help in mono acting, one-act play, dialogue teaching and developing imagination

*11. Insect Display Jars .* Injection bottles were used as insect display jars sealed at the top with candle wax.

### Evaluation

1. One of the most promising approaches to evaluation lies in what has been called 'assisted self-evaluation' It means involving the participants in their own evaluation (but with outside scientific control), in such a way that they discover by themselves the strengths and weaknesses of the programme, in which they are working, and the evaluation provides a means for improving the chances of the innovation's success The pupil-teachers, when provided with project library cards, had to self-evaluate the articles made by them and had to improve upon them under the scientific guidance of method masters

2 Out of a total number of 113 pupil-teachers, 81 submitted four library cards The percentage was 71 which was quite high and it proved that they were properly motivated and had worked with zeal, as it was their own felt need

3 Special importance was given to articles for Class I (26%) in which the child needs more practice and loves to play The next was Class III (24%), being the highest standard, the sub-school teachers had to teach

4 Free and easily available waste materials used showed that match-stick boxes, chalk boxes, cartons, etc , were frequently used Bamboo sticks, wires, plastic bags were also widely used as they are easily available everywhere

5. Self-learning kits for numeracy were of the highest number, as mathematics needs much practice and it is the subject in which students lag behind. Proper weightage was also given to social studies and fundamental science

6. Just as every child is different from another, so is every teacher different from all the others His idealism, his creativity, his imagination is unique to himself, and therefore, every teacher preparation programme must take into consideration this uniqueness of his personality. This project provided every pupil-teacher with a chance to express to the full the uniqueness of his personality This objective, though not aimed at in the beginning of the project, was also felt to have been achieved

## Usefulness of the Project

1. The kits may be used as self-spaces learning material both at school and at home. For children it is a leisure-time activity for acquiring knowledge of life. A 'multi-media' programme is sure to be more effective than the one which relies on a single medium. The materials made under the project are thus useful for a small group, for individual instruction, even for remedial work also.

2. It is not important what one 'knows' but what one 'becomes'. The pupil teachers came to know not only the fundamentals of preparing teaching aids, but also became producers of kits for their students and they could develop new kits in future as well. The project succeeded in skill-cultivation among the trainee-teachers.

3. As commended by one top educationist, these hand-operated kits could be the base of teaching machines of the future and big sized kits like view masters may lead to develop programmed learning kits too. The subject matter would depend on the imagination of the programmer.

4. Some of the learning kits prepared under the project could be used both as discovery games at the initial stage and then at a later stage as instructive games also. Some of these articles may be used as educative play materials in pre-school education centres. The manuals to identify waste and inexpensive materials and to prepare toys of these may also be developed for the use of teachers. "This task can be undertaken under socially useful (activity) productive work by the students at any stage.

## Feedback

The feedback responses clearly indicate that the would-be teachers have very positive attitudes towards making such self-learning kits in future. Some innovative teachers talked personally and had good practical ideas, to be implemented in life situations. It is hoped that this project will stimulate others to take up similar work.

# Using Value-clarifying Strategies in the Classroom

N K. JANGIRA

*Reader*

*Department of Teacher Education*
*NCERT, New Delhi*

ONE or the most important educational concerns refers to teaching values. The concern is universal in the sense that every member of society expresses it The difference of opinion, however, appears when the question of methodology of its teaching is considered It will be worthwhile to have a look at the conventional methodologies of teaching values used by the teacher, examine their relevance in the present context, and seek new ways of teaching them if they are considered inadequate.

Conventionally, values are beliefs, purposes and attitudes which are transmitted through a culture. There are values like truth, goodness and beauty which are universal and have relevance for all times But there are others like work values, economic values and life values which change with the time The latter assume significance today as the pace of change is so overwhelming that it is difficult to cope with it The pace of change is going to be further accelerated in the times to come. These values will have to be chosen freely and thoughtfully, prized and acted upon. But is the child prepared for this?

Have a look at the child. He practically stands bewildered. He finds disability all around. What is taught at school and at home is flouted at every moment and everywhere At home the parents tell the child to speak the truth but he feels surprised the next moment when his mother asks him to tell the caller that his father (who is actually in) is not at home The teacher who all the time demands punctuality from them, is himself usually late without even being apologetic. The priest who preaches shunning anger suddenly flares up in the same breath when he does not get a good return for his service. The things so eulogised by the advertisements in mass-media turn out to be a damp squib The neighbour remains at large after committing a crime through dubious means. The leaders who promise so much at the election time refuse to recognise the voter when they visit him for a service after the election. The child faces value conflict all around. This conflict is increasing day by day. Is he prepared to deal with this conflict? If not, he is being deprived of an essential life skill component?

## The Alternative

Usually, values are taught to the children through *examples*, i e, the way adults behave by quoting good models of past and present, through *persuasion and convincing*, through *inspiring by* dramatic or emotional pleas for certain values, through the enforcement of *rules and regulations*, through presenting the unquestioned wisdom as *religious* tenets and *appeals to conscience* The limitation of these conventional approaches is that they do not take the child beyond the awareness stage and thus they do not ensure value-related behaviours in actual life situations. These are based on the premise that values are predetermined They fail to impart to the child the valuing process which is the need of the hour in the fast changing world with attending complexities of life and related values.

What can be the alternative approach to teaching values. Value-clarifying strategies, stressing the valuing process, provide the alternative process of valuing, choosing freely and thoughtfully from amongst alternatives, prizing and acting accordingly The purpose of the clarifying strategies is to raise questions in the mind of the child, *to provide him with an opportunity to examine* life, his actions and his ideas, with the expectation that he will want to use these prompts as an opportunity to clarify his understanding, purposes, feelings, aspirations, beliefs, and so on The author used these strategies with children ranging from primary schools through secondary schools to prospective teachers under training. The results have been quite encouraging. Some of the strategies are as below.

## The Clarifying Response

This particular clarifying strategy is based on the mode of responding or reacting to what a student says or does. The responding and reacting behaviours of the teachers help the students to clarify their thinking towards the specific problem or issue in hand Examine the two episodes given below and see the ways in which the two teachers react to the students

### EPISODE I

| Pupil | We have purchased a solar cooker |
| Teacher | That's nice |

### EPISODE II

| Pupil : | We have purchased a solar cooker |
| Teacher | Are you glad that you have purchased a solar cooker ? Will it be helpful to your family ? |
| Pupil · | Yes, it will be |
| Teacher | How will it be helpful to your family ? |
| Pupil . | It will save energy. |
| Teacher | That's nice Do you think it will be helpful to you in some other ways as well ? |
| Pupil . | Yes, it will save environmental pollution |
| Teacher | Do you like it ? |
| Pupil | Yes, I do. |

It will be seen from the above that the first response, though positive, is not likely to stimulate clarifying thoughts in the pupils. But as is evident from the second episode, all the questions are likely to evoke the clarifying thought process on the part of the student

The clarifying responses avoid moralizing, sermonizing, criticising, evaluating, etc The adult excludes use of words like good, right, or acceptable On the other hand, it puts the responsibility on the student to examine his own behaviour and decide for himself what he wants His responses operate in the situation in which there are no right answers. Such a situation involves feelings, attitudes, believes, or purposes It may also involve issues and problems Some of the clarifying responses used by the teachers as reacting behaviours are

—Is this something that you prize ?

—Are you glad about that ?

—How did you feel when that happened ?

# Teaching of Concepts in Early Years

K. B. RATH

*Department of Teacher Education*
*NCERT, New Delhi*

THE STAGE of primary education covers children in the age-group 5/6—10/11 years, studiyng in Classes I to V  This is a very crucial stage in the physical, emotional, social, cognitive, and psychomotor development of the child. All these aspects of development are determined by heredity and environment  Heredity is practically beyond our control in the sense that we cannot modify it. But through proper stimulationin the environment we can influence the development of the child in the desired direction.

Early experiences in the family contribute a lot to the development of the child. Simultaneously, school has to carry forward the work of child learning through proper stimulation from the environment. The child's spontaneity, curiosity, creativity and activity in general, should not be restricted by a rigid and insipid method of teaching

One of the important areas of teaching refers to the teaching of concepts.  Concept is a categorization of objects and events on the basis of features and relationships which are either common to the objects perceived or are to be judged by the individual.  The child is in concrete operational stage at this age and his thinking is oriented towards concrete objects in his immediate environment  He learns the physical attributes of objects one by one and each grouping remains an isolated organization. It helps in evolving ideas and abstract thoughts  For acquiring new concepts.he can employ the basic concepts of time, space, number, and logic he has already learnt  At the primary school stage different content areas have many concepts like number, integer, factor, angle, quadrilateral, etc., in mathematics; noun, article, verb, adjective, etc , in English, and animal, mammal, rock, soil, solid, neuron, etc., in science as well as in other subjects. If these concepts are adequately learned by the students, it will help them to identify the objects around them, classify the objects, understand complex concepts, generalize them, and form rules and principles in latter years.  So it is important for the teacher to know the strategies for teaching of concepts to the children at the primary stage

## What is Concept ?

Before describing the strategies, it will be

desirable to define the word 'concept' Concept is a class of stimuli which have common charac - teristics. These stimuli may be objects, events, or persons  We designate concept by its name such as number, square, triangle, etc. The meaning of a concept in the sentence form is called the *definition* of the concept  For instance, the definition of the concept 'square' is that it is a quadrilateral having four equal sides and angles  A concept has distinctive features known as its *attributes* through which it can be identified.  For example, the attributes of the concept square are four sides, equal sides, and equal angles.  Every attribute has an *attribute- value*  It refers to the specific content of the attribute  In the above example of attributes the value is equality of length and breadth (if length is 5 cm, breadth is also 5 cm, and so on), and each angle is 90°

## Objectives of Teaching  Concepts

At the primary level the children after learning the concepts are able

1   To recall verbally the critical properties in appropriate relationships
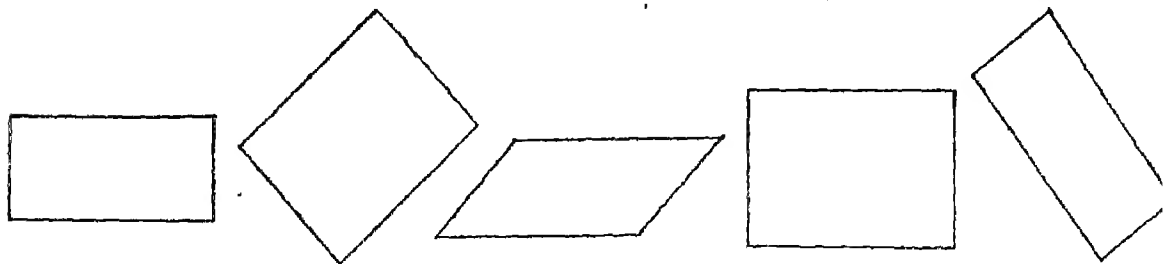


2   To  correctly sort out a variety of posi- tive  and  negative  examples  of  the concept to be taught.

3   To identify verbally critical and non- critical properties and the  appropriate- ness or inappropriateness of their re- lationship,  given  any  new  and  un- familiar positive or negative instance.

4   To sort out correctly a variety of posi- tive  and  negative  examples  of  the

discovered concept

## Teaching Methodology

In order to achieve the objectives outlined above,  the teacher  can  use  the following methodology.

'1.    Describe the expected performance of the pupils at the end of each concept learning*

In the beginning of the teaching of a concept, the  teacher should be clear about the expected performance, i e , the correct identification of new examples of the concept  For example, in the case of the concept square, the pupil will be able to identify correctly the square from the new examples as illustrated below.

This performance assists the teacher in asses- sing the adequacy of his teaching, and  also it functions  as  a  feedback for him in changing his presentation of the concept in case the pupils experience difficulty in learning it.  The pupils also assess their own performance which acts as a reinforcer for them

*2. Select dominant attributes*

The teacher is required to make an analysis of the concept he decides to teach  and  to find out its dominant attributes   Dominance refers to  the  fact that  some  attributes  are  more obvious than' others  in a concept   But at the time of teaching the teacher should focus on the obvious attributes and ignore others   It helps in  the mastery of the concept.  The choice of which attributes be ignored requires the teacher to  have  considerable  familiarity  with  the concept and its normal uses  For example, the

teacher decides to teach the concept of Triangle, the dominant attributes of which are close figure, three vertexes, three angles, internal angles, and the ignoring attributes are equal sides, equal angles, base, median, altitude, etc

### 3 Provide the students with useful verbal mediators

When we name an object orally, a verbal association is formed between the object and our cognition through which we learn The verbal words which mediate between these two are known as verbal mediators. For example, the verbal mediators in learning the concept Triangle are reciting the name "triangle", spelling the word triangle, telling the name after drawing it on the blackboard, etc. This type of verbal association is important because it facilitates the pupil's learning of a concept

### 4 Provide enough positive and negative examples of a concept

The teacher should provide a list of positive and negative examples of the concept which he decides to teach. The positive examples of a concept are those that contain the attributes of a concept like vertex, close figure, close sides, three sides, angles, in the case of Triangle; and

negative examples should be provided. All negative examples of the attributes which usually confuse the students should be presented, and, if necessary, explained

### 5 Help the pupils to identify a concept from new examples

Here the teacher provides both contiguity and reinforcement whereas the preceding stage provided discrimination This step emphasises generalization or the ability of the students to make the conceptual response to a new but a similar pattern of stimuli.

For example, in the case of Triangle, the teacher should draw some figures, as given below, on the blackboard and the task of the pupils is to identify the triangle

### 6. Check the pupils' learning of the concept

Here the teacher should present several new positive and negative examples of the concept and ask the pupils to select only the positive examples For instance, in the case of Triangle, the following positive and negative examples should be shown to the students randomly. The pupils can recognise and verbally select the positive examples This is important in concept
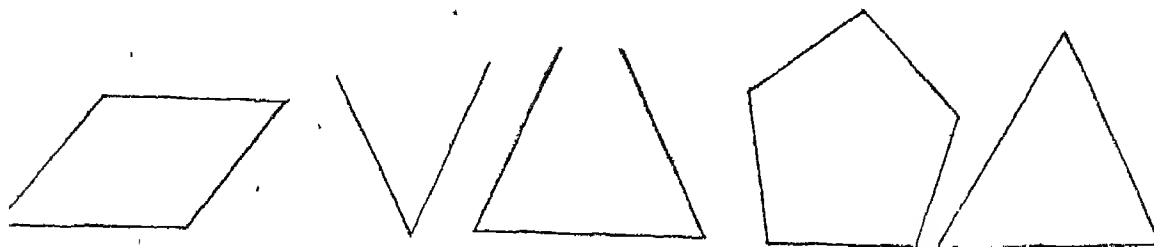


the negative examples do not contain any of the attributes like four sides, open figure, no vertex, etc. The presentation of negative and positive attributes help the students to discriminate the positive from the negative, as a result of which concept learning is facilitated. Besides this, the number of examples is also a determinant factor. In teaching a concept, enough positive examples accompanied by less

teaching because of a mean for assessing the pupils' performance. It also provides the pupils with additional opportunities to make responses for which they can obtain their own or the teacher's reinforcement, or both.

### 7. Making the pupils define a concept

Up to this stage the pupils have learnt to discriminate and generalize a concept. They

are now required to reproduce the concept in terms of its definition. Concept learning will be easier with the definition of the concept. This exercise develops the ability to organise the positive attributes of a concept in terms of sentences and words. But in some disciplines like science, mathematics, etc., it is difficult to describe a concept in words. It is probably most necessary to provide special training for concept definition when that definition is particularly difficult to formulate.

8  *Reinforce the pupils' responses*

In concept learning reinforcement primarily provides knowledge of the correctness of the pupils' responses accompanied by the teacher's encouraging behaviour. In the classroom verbal reinforcement like 'good', 'how nice', etc., can be given. Here the examples cited are from mathematics only. The same procedure can be applied to the teaching of concepts in other subjects, too.

# Inservice Training of Teachers

QAMAR UDDIN

*Department of Measurement
and Evaluation, NCERT
New Delhi*

WE ALWAYS talk of qualitative improvement in education No doubt, such improvement is the need of the day, and many of India's problems can be solved if we provide the right type of education to our children. Any improvement in education is conditioned by the quality of the teacher who has a pivotal role in the education and allround development of the child. It is, therefore, necessary that very careful planning is done in the selection of the right type of teachers who have not only a natural aptitude for teaching, but are also provided with pre-service and inservice training and constant feedback facilities in the form of refresher courses in the methodology of teaching and content

Apart from providing refresher courses in content areas to strengthen their mastery over the subject/subjects, the teachers need to be made aware of the latest researches and trends in their content field. There is, therefore, an urgent need to provide to the teachers opportunities for exchange of experiences at some kind forums designed for them At these forums they can discuss their problems and learn more to improve their instruction. Such exchange of views and experiences with their fellow teachers would

provide them the necessary encouragement and opportunities to make education more fruitful, objective-based and a really effective instrument for social change This would also make them aware of the significance of their contribution in the total national set-up. Presently, such forums are in existence but only in a few public schools where they have been found very effective and useful Such forums must be organised on a large scale with the help of the departments of education. Publication of a small newsletter of the forums will be of immense use to the teachers in general. The teachers can be encouraged to contribute to the newsletter in the form of their experiences, their problems, and their suggestions for the solution of different problems in the field of education.

A general awareness needs to be provided to the practising teachers regarding the goals to be achieved through teaching. Many of us are still of the view that the aim of education is just to impart knowledge of a particular subject. They are simply not aware of the changes that education, imparted in the right and well-thought-out way, can bring in the total structure of the personality

26

of the child. The contribution of their instruction and the impact of their personality on the development of attitudes, interests and habits of the pupils need also to be emphasised. The total concept of education, as it is today, is to be compared with the product which we are getting and with the real objectives for which education stands It is also necessary that the concept of education is changed in the light of the social, political and economic needs of the present-day India. In this regard, proper stress in the present-day teaching on the social, ethical and personal values and their impact on the personality of the child is also to be taken care of.

Through teachers' forums the teacher can be made aware of the real place and contribution of evaluation in education and the crucial role it can play to improve the quality of instruction. Till now the only use of examination has been considered to be just an assessment of the level of achievement of a pupil. But what effective role evaluation can play in improving the achievement is often overlooked.

It is because of this fact that the teacher's contribution remains limited to what he has been taught. At the primary stage we should be all the more careful in treating teaching and testing as two significant components of the instructional programme, because the early years of the child's life are crucial for his growth and development, mental as well as physical Habits, attitudes, interests, sentiments are formed and take root rather firmly and once for all during these years. It is, therefore, at this stage that the main emphasis should be laid on the formation of right attitudes, right conduct, right way of thinking, broad mindedness, commonsense, sense of responsibility, and such other qualities. This is possible only when teaching is not treated in isolation of testing and there is special emphasis laid on the fulfilment of the cherished goal of harmonious and optimal growth of the children It is also necessary that teaching is not treated in isolation of practical problems of life, and education is imparted with a view to developing the qualities of head, heart and hand.

# Primary School Children in Switzerland : Their Achievement in Multi-lingual Environment

KRISHNA MAITRA

SWITZERLAND, a conferderation of twenty-five cantons (19 cantons and 6 half cantons) since 1848, is a country with four national languages (German, French, Italian and Romansch), two cultures (Germanic and Latin), two main religions (Protestant and Catholic), and several political parties

The people living there have no common racial background. The majority (nearly three quarters) speak German (Swiss-German). The people living in Western cantons speak French and a small minority, found almost exclusively in the South (cantons of Ticino), speak Italian. But, mostly, in every canton, particularly in Besal, people from above three linguistic groups are well spread out.

Swiss educational policies are planned and carried out keeping in the view the country's economic development, which in turn takes care of its political independence, age-old neutrality which is deeprooted in its internal diversity and external non-alignment.

The objectives and curricula of primary schooling are as given below

(a) During the first year, the aim is to switch children from playing games to learning a measure of discipline to organize study that will help develop their elocution and vocabulary and give them a basic knowledge of reading and arithmetic.

(b) During the second and third years, the emphasis remains on cantonal language with the addition of mathematics, physical training, writing, drawing, the study of the environment and singing.

The author had the opportunity of staying in Canton Basel for nearly two years During her stay over there, she studied the educational system of Switzerland, in general, and of Basel, in particular. As she got involved in a local primary school (Issac-Iselin Primar Schule), she availed of the opportunity of meeting both the parents and the teachers, and observing the children in the school and out-of-school situations, particularly with regard to their achievement level in such curricular subjects as reading, writing, mathematics, and speech

## A Description of the Sample

As Basel is an industrial city, people from all linguistic groups along with a large number

of foreigners from South Asia, Turkey and African countries live there for different purposes. Since primary education is compulsory and free of cost, children from different communities throng together in the local government school for their primary schooling. Hence a particular grade (class) is comprised of children coming from diversified socio-economic background.

Sixteen students from second grade were randomly selected and their achievement for two consecutive years (Standard II and III) as well as other affective parameters were noted down. The students were classified into three groups according to the mother tongue of their parents.

The achievements in different subjects of the above group of children were noted down in terms of average grade points and were analyzed keeping in view several important parameters like language environment, socio-economic background and parental care and interest.

## Language Environment

The multi-lingual environment experienced by a Swiss student is perhaps a unique feature in the world where the children speak minimum three to four languages in and outside the classroom. In a German-speaking canton like Basel, while the medium of instruction in the classroom is German, a student often speaks non-German languages at home and outside as required. Thus, a child of Italian parents speaks Italian at home and German in school. As an extreme case, a child from bilingual home environment (say, French and Italian) speaks both French as well as Italian at home and German in school. The group of students under investigation comprised some children with non-European languages as their mother-tongues which are Turkish, Bengali and Swahelie.

## Socio-economic Background

It has been mentioned earlier that mostly all children of a particular locality have their schooling from local government school. In the present study, students had been chosen from a diversified socio-economic background.

## Parental Care and Interest

The parents of the children were also having diversified background so far as their care, interest and aspiration were concerned. There were parents who took little care of their children who were either left to the care of baby-sisters or simply loitered around in the streets.

Again, there were parents who took real interest in their children but such cases were rare in Europe, particularly in Switzerland. Sometimes, the young parents are busy in their own interests or jobs, and fail to keep any ideal before the children.

## Achievement Level

The above is a brief picture of the background of the children who were included in the study. Below is the table showing their achievement grade points in academic subjects for two consecutive years. The results shown are only for the final semester.

From this table, it is apparent that the non-German-speaking children are at par with the German-speaking children, rather, if looked at individually, they are in a better stand.

Some pupils, irrespective of their language groups, secured even highest grade points. Mother-tongue seemed to play an insignificant role so far as their achievements are concerned, although their proficiency in the medium of instruction was of vital importance.

Some individual case studies from the above sample revealed that those securing poor grades seldom got any care at home. From an interview with the class-teacher the author came to know that these weaker students got special attention in the classes. In the classroom,

Achievements of Children of Different Groups in two Consecutive Final Semesters (79-80 and 80-81)

| Group | Student | Reading | Speaking | Mathematics | Writing |
|-------|---------|---------|----------|-------------|---------|
| I (German) | A | 6/6 | 5-6/6 | 5-6,6 | 5-6/6 |
| | B | 2-5/5 | 5/6 | 5-6/5 | 4-4/5 |
| | C | 5/4-5 | 4-5/4 | 4/5 | 5/5 |
| | D | 6/6 | 5/6 | 5/5 | 4/4 |
| | E | 4-5/4 | 5/5 | 5/5-6 | 3-4/4 |
| | F | 6/5-6 | 5-6/6 | 6/6 | 6/5-6 |
| II (Mixed) | A | 6/6 | 4-5/4-5 | 4/4 | 5/6 |
| | B | 6/5 | 4-5/4 | 6/6 | 5/6 |
| | C | 5/6 | 5-6/5 | 5-6/5 | 4-5/5 |
| | D | 5-6/5 | 4-5/6 | 5/5 | 4-5/5 |
| | E | | | | |
| | F | | | | |
| III (A & B) (Foreigners) | A | 5-6/6 | 5/6 | 6/6 | 6/6 |
| | B | 5-6/6 | 5/5-6 | 5-6/5 | 5-6/6 |
| | C | 6/6 | 5/6 | 3/4 | 6/6 |
| | D | 3/4 | 4-5/4 | 5-6/4 | 4/4 |
| | E | 5-6/6 | 5/6 | 5-6/5 | 5-6/5 |
| | F | 4-5/4 | 5/5 | 5-6/5-6 | 5/5 |

N B. The figures are the average grade points secured by the children in two consecutive years, respectively

sitting arrangements were done in such a way that a group of four students sitting around a table, was made to comprise of both high and low-achievers. Such an arrangement, according to the opinion of the class teacher, was believed to nurture the cooperative spirit rather than the competitive attitude which in turn would help the low-achievers, particularly the mediocre, to improve their understanding, achievement and self-confidence The high-achievers were never segregated in the classroom.

## Findings and Conclusions

1. For children at least at the primary level, family background and parental care play an important role in shaping the child.

2. For high achievement, proficiency in the medium of instruction in the school is a must, whatever be the mother-tongue of the children

3. The intelligence and achievements of the children are not affected when the children are exposed to a multilingual environment.

4. The languages other than the mother-tongue of the children pose no burden to them in addition to their regular curriculum.

5. The children can pick up any language very quickly when they are taught through environmental interaction in the way of playing in a group, reading story books, watching T.V., and so on

6. Teacher-effectiveness is a major contributing factor in the teaching-learning situation as is observed in the present study.

# Teaching English Alphabets :
# A Play-way Method

Benimadhab Mukherji

THERE is no similarity between English alphabets and those of the Indian languages like Hindi, Bengali, Tamil, etc Therefore, it becomes difficult for our children to adopt the English method for learning English alphabets. Faced with such difficulty, while teaching English alphabets to my grandson, aged 4 years, I tried several ways to make the child understand these alphabets and in the process found that English alphabets comprise straight lines and/or combinations of straight lines and curvatures The method that was easily understood by the child was making different types of curvatures by hand and setting fingers to form any type of alphabet as required Thus, all the 26 letters (Capitals) can be formed easily and quickly

To check its effectiveness, the method was demonstrated to a small group of four children. It was found that not only did they pick up the technique in a very short time, but in their jubilation, they also showed it to their equals This is what is expected to be the art of teaching to the beginners, as a play-way method

The method devised is very simple, inexpensive and does not require any tool or contrivance. Hence, it has a great advantage over all other methods adopted so far. This method will develop creative insticts and talent of the children whereas learning letters with the help of ready-made plastic letters available in the market will suppress their creative talent This technique will be considered by the children as a mere game and hence will be liked by them Therefore, it will not result in any taxation of their brain. Children find it difficult even to draw straight lines with pencil, but they will do so easily by stretching a finger straight Hence, the method will be of great help to the children prior to their learning of how to write the alphabets.

For the sake of convenience, the letters have been grouped according to their similarity instead of alphabetical order, as shown hereunder .

(i) I, T, L   (ii) V, N, Z   (iii) W, M
(iv) A, K, Y, X   (v) H, F, E   (vi) U, C, B, G, S, J   (vii) O, Q   (viii) P, D, R
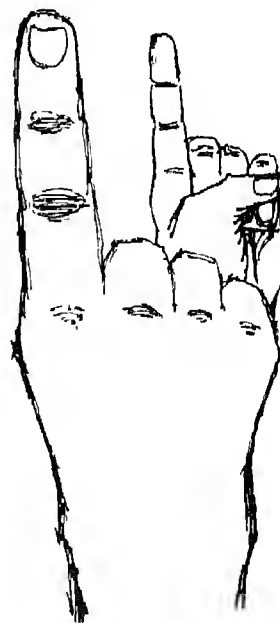
Straight lines may be formed by stretching the fore-fingers vertically or horizontally as required. The remaining fingers may be pressed down by the thumb, for the formation of letters I, T, L, X, etc.

Two parallel straight lines may be formed by stretching the fore and little fingers of a hand by pressing down the middle and ring fingers by the thumb as shown below. This will be required for the formation of H, F, and E.
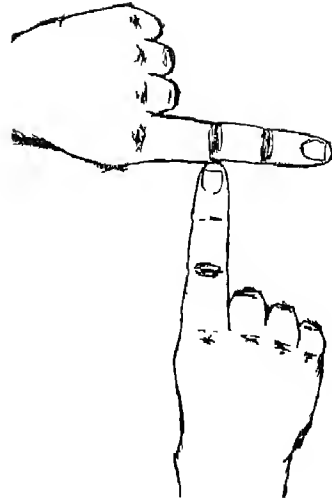
For 'V' the fore and middle fingers of one hand to be stretched by pressing down the ring and little fingers by the thumb. This will be required for the formation of N,Z,W,M,A, K,Y.

Curvature may be formed by the thumb, the fore-finger and the portion of the palm between the two fingers of the hand. All the four fingers (Fore, Middle, Ring and Little) be simultaneously bent together to form a similar shape. This will be required for the formation of letters U, C, B, G, S, O and Q
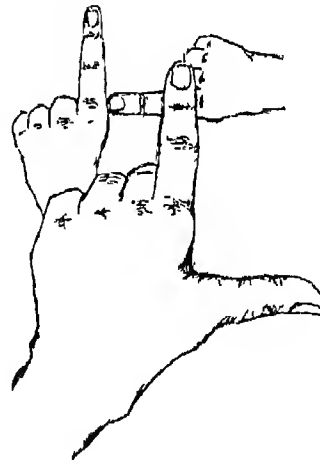
**How to Form Letters (Capital)**

T—One fore-finger should be held prependicularly on the top of the other fore-finger

I—The fore-finger should be stretched vertically upward after pressing down the remaining three fingers by the thumb.

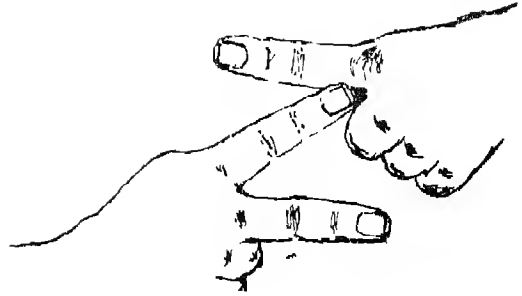L—(i) The thumb and the fore-finger of the left hand should be stretched to make a right angle ; or (ii) the fore-finger of the left hand should be held perpendicularly to the one end of the other fore-finger.

32
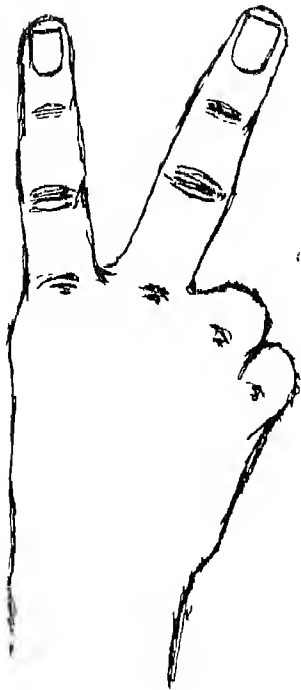
V—The fore-finger and the middle finger of one hand to be stretched, forming an acute angle, say 45° or so.

Z—The fore-finger of the right hand forming "V" should be stretched to the angular point between the fore and the middle finger of the left hand. Press down the remaining three fingers by the left thumb. The middle finger of the right hand should be placed in such a way that it should be parallel to the fore-finger of the left hand
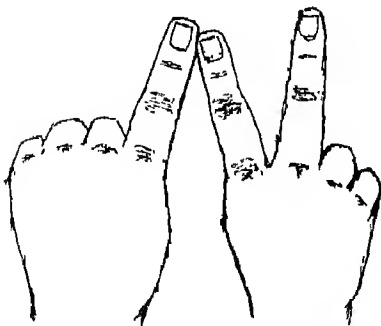
N—Forming "V" by the right hand, join the tip of the two fore-fingers at an acute angle, say 30° or so.
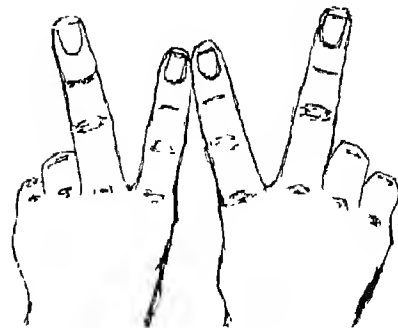
W—Forming two "V"'s by both the hands, join the tip of the two fore-fingers at 45° angle or so.

M—Reverse the shape formed in "W" above by movement of the hands
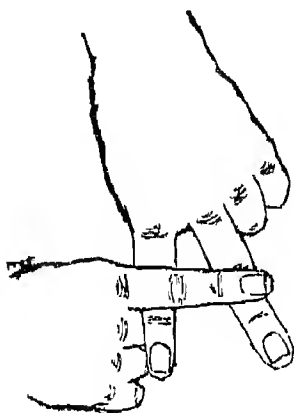


A—Form "V" by the left hand and invert it. Then the fore-finger of the right hand should join the middle portion of the "V" formed by the left hand.
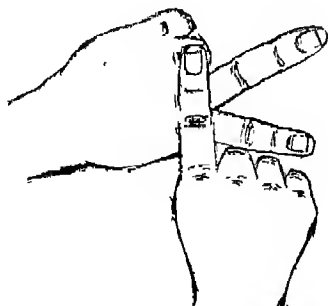


K—The fore-finger of the right hand should

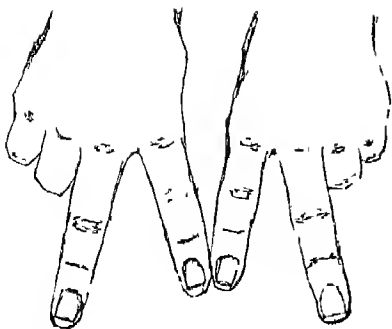be placed perpendicularly at the bottom of the "V" formed by the left hand
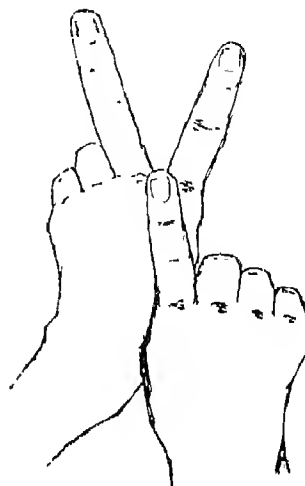


Y—The fore-finger of the right hand should be stretched downwards from the angular point between the fore and the middle finger of the left hand forming "V".
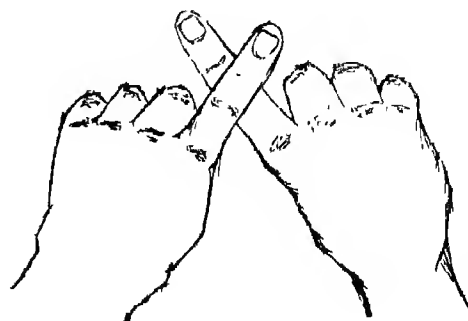


X—A cross should be made by placing one fore-finger at the middle of the other.

34
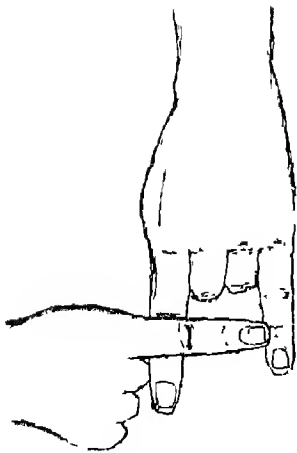
H—Stretch the fore and the little finger of the right hand by pressing down the middle and the ring finger by the thumb so as to give a look of two parallel lines. Place the fore-finger of the left hand across the middle portion of the lines at a right angle
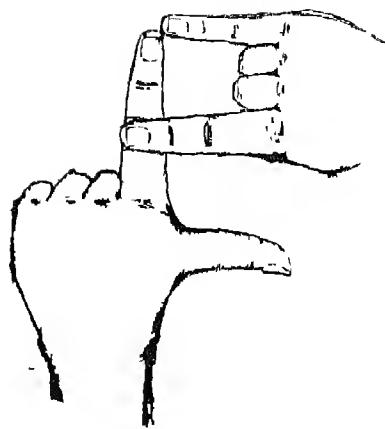
E—Form "F" as stated above and stretch the thumb of the left hand.
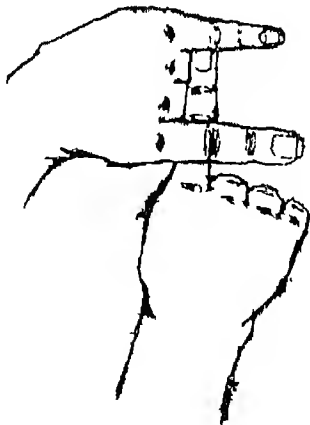




F—The fore-finger of the left hand together with the right end portion of the palm would represent the vertical line of the letter 'F'. Stretch the fore and the little finger of the right hand by pressing down the middle and the ring finger by the thumb The fore-finger of the left hand should then be placed at the top end of the two stretched fingers of the right hand, at right angle to each •
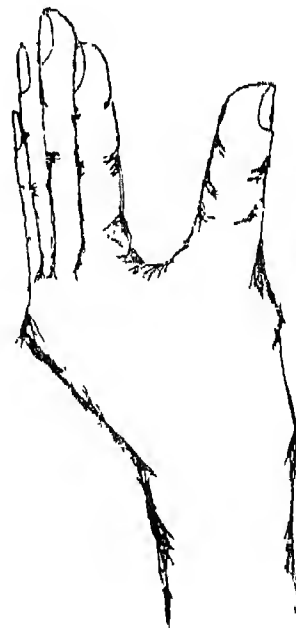
U—Form a curve of "U" shape by the thumb, the fore-finger and the portion of the palm between the thumb and the fore-finger of the left hand. Place the fingers vertically upward.

C—After forming roundish "U" by the left hand as stated above, turn the hand 90° clockwise.

G—After forming "C" by the left hand as shown above, bend the fore-finger of the right hand at right angle and place it on the thumb forming "G"

B—From two "C"'s by two hands. Join the two "C"'s horizontally, tips of the two thumbs touching each other and the same being kept in a straight line. The fore-fingers also should touch each other. Place the left hand upward.

S—After forming two "C"'s by both hands, place the fore-finger of the right hand "C" on the thumb of the left hand "C" to form the shape of "S"
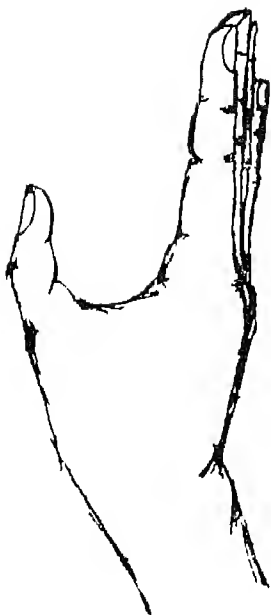
J—Form a curve of elongated "U" shape with the fore-finger, the palm and the thumb of the right hand but keep the fore-finger straight upward.

O—Form a curve of "C" shape and touch the tips of the two fingers (i e , the thumb and the fore-finger).
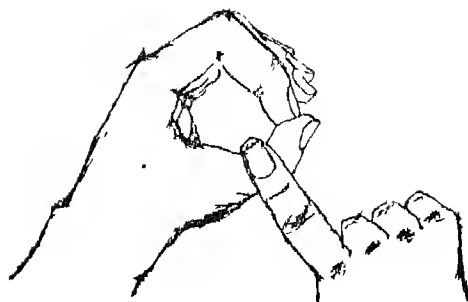
Q—After forming "O" by the left hand, place the fore-finger of the right hand, crossing the thumb at a suitable angle
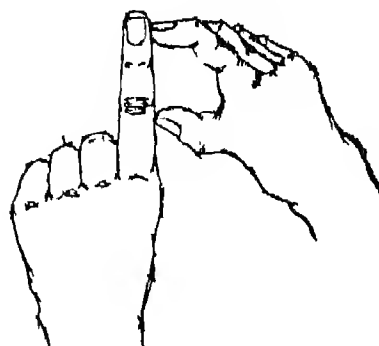
P—Stretch the fore-finger of the left hand. Form a curve of "U" shape with the thumb and the fore-finger of the right hand and join at the middle and the upper portion of the stretched finger of the left hand
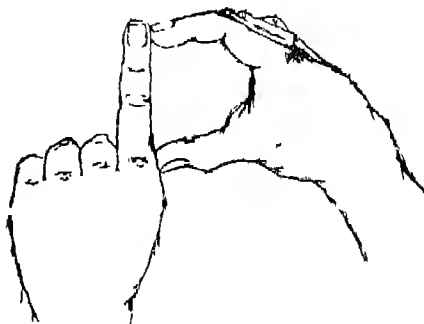
D—Follow the same process as "P" above but join the elongated "U" shape of the right hand to the two ends of the stretched finger of the left hand.

R—Form "P" and stretch the middle finger of the left hand at 45° angle

After the children have learnt the shape and formation of each alphabet, they may be encouraged to review the whole process with the help of the following story.

There is a school. It has many classes But the class with which we are concerned is called the "Alphabet" class There are 26 students in that class. Each student is known by each letter of the English alphabets However, they are sitting haphazardly in eight groups according to their structure and height Among them, there is an "Appu" group consisting of six students as shown below :

(i) I, T, L.    (ii) V, N, Z.    (iii) W, M.
(iv) A, K, Y, X.    (v) H, F, E    (vi) U, C, B, G, S, J    (vii) O, Q    (viii) P, D, R

The students may now think over the names and structure of these 26 students for sometime If they can recognise them easily and readily, arrange them in alphabetical order. Remember that the student 'A' is No. 1, 'B' is No. 2, and 'Z' is No. 26

Thus, it will be seen how easier it is to teach and learn English alphabets with the help of one's own hands and fingers.

# TEACHERS WRITE

## Science Education in Elementary Schools

THIS is the age of science Therefore, teaching of science and an understanding of scientific achievements year after year gain primary importance in education. This may be true in the case of a few outstanding schools which admit talented and high-scoring children Yet the fact remains that in so far as science talent search is concerned, even these schools fail to attain the desired results Where does then lie the flaw ? Maybe, the environment, the school, family cooperation, difficulty of curriculum, economic considerations, etc , are responsible for this state of affairs. Even then, we may have to make science teaching techniques attractive, as also to lay due emphasis on teaching of science at the elementary stage in order to develop among children interest for the subject An understanding of educational psychology would reveal how the teacher can develop basic interests and aptitudes among children. This indeed ought to be done right from the elementary stage of schooling.

The question how science education ought to be taught in village schools in a better way, has been under study during the last two decades. Since July 1972 the book titled *Learning Science by Doing* has been taught in Class III of Primary Schools of Madhya Pradesh. Again, the State Institute of Education, Jabalpur has been organising since 1973, a special programme for teaching science in elementary schools of the State. It has produced obvious results, viz., making science teaching interesting. However, it has yet to achieve its aim of identifying science talent among children.

An innovative project on exploring science talent is being tried in a school in Khandwa. It has developed a 'Science Development Centre', a kind of mini institution, with the cooperation of science teachers and concerned students. It focuses its attention on exploring science talent right from Class III, by way of regular teaching, organising activities and evaluation. It aims at .

1. developing a questionnaire on science talent search,
2. preparing science teaching kits for teaching science in primary schools;
3. developing school improvement committees for effecting quality education in science at the elementary level, in cooperation with science clubs and the science development centre;
4. organising refresher courses for science and mathematics teachers;
5. organising science fairs, etc., in cooperation with other schools, etc.

It is expected that such activities will bring improvement in the teaching of science and exploring science talent.

K. R. BHAT

## Addition-Substraction Chart for Classes I-III

THE PRESENT is a scientific age. In order that rural adivasi students may live with the times content, facts and knowledge of science are thrust upon them from their early education. Arithmetic is taught to them from the beginning so as to creat in them scientific interest and attitude. I* is almost impossible to study science without the help of arithmetic. It is therefore important to make the teaching of arithmetic easy and interesting, lest it should hamper the study of science. One who fails to understand

processes like addition and substraction in Classes I to III becomes indifferent to the study of arithmetic and even begins to hate it This difficulty may be removed by making these processes simple and easy with the help of a chart

This chart, to be prepared on the principle of counting beads used in primary classes for teaching counting, could be used for teaching addition and substraction For instance, in order to teach addition of 8+6=14, the child may count points along the horizontal line up to 8 and then along the verticle line up to 6 giving the total as 14 This technique is not only simple but also an improvement over the traditional method of drawing 8 lines for counting up to 8 and then another 6 lines, before recounting them from the first to the last line thus draw to get the total 14 This process saves time and also eliminates chances of error in comparison with the popular traditional method. This technique can be used for adding larger figures as well For instance, to add 68+72+54, the same process is applied only with the difference that the figure carried over from the addition of figures 8+2+4 has to be added to the addition of figures 6+7+5. This process can be used even in larger additions Thus, in order to teach addition, a chart of the size 9″×9″ is quite adequate However, to teach substraction, a chart measuring 18″×18″ need to be used, particularly for solving sums involving bigger substractions

NAMDEO MASKI

## Teaching Children Through Toys

CHILDREN love toys and consequently record their first impressions through them. So what better way is there to teach them but through toys ? This is the basic idea behind developing educational play materials for little ones

A wooden cart—which one can usually see a child tottering about with—has been interestingly described in a manual on 'Play Materials of Andhra Pradesh'. As for its educational value, it "promotes group play and interaction among children may help the child understand concepts of slope, uphill, heavy, light, near and far."

Similarly, while describing a 'Rattle', the manual says "The sound of a rattle draws attention of the young child The curious child tries to crawl or to walk towards it in order to find out what makes the sound

In older children it may be used to identify and discriminate sounds, to learn slow, fast, high, low, soft and loud sounds

Still older children may use rattles to beat a certain rhythm which helps them to learn numbers "

The manual is the result of a survey of educational play materials in Andhra Pradesh carried out by Miss Ravitha Devendernath, Lecturer, Princess Esin Women's Education Centre, (Nizamia Hyderabad Women's Association Trust), Hyderabad. The survey has been funded by the Children's Media Laboratory, Child Study Unit (CSU) of NCERT The survey has helped in identifying the existing toys in the districts of Andhra Pradesh.

The manual documents the educational potential of toys with the help of illustrations and photographs, for the use of teachers. Though each toy may have a specific value, integrated learning of language, number, science and other concepts is possible,

Various traditional games of the State are included in this manual Many of these can be simplified to suit the developmental needs of children

This manual may serve as a useful reference not only for teachers but also for manufacturers in designing relevant educational play materials. It may also produce the concept of 'learning through play' which needs a wider acceptance in the adult communities. With a little effort, interest, imagination and practically no expense, adults can use indigenous materials to develop potentialities in children

The games and activities in this manual are purely suggestive Illustrations are intended to create an awareness of the wide range of possibilities for enriching the environment and innovation for more games

The manual covers nearly 68 play materials underlining their educational value.

The children at pre primary and early primary state need concrete experiences to understand the world around them and it will not be an exaggeration to say that there is no better way to teach them at this age than through play. With a little imagination, resourcefulness and initiative teachers can make learning an experience to which little children look forward eagerly

## Rudolf Stiener System of School Education

"EDUCATION should aim to widen a child's horizon—he should develop an awareness of what is real and just", said Ms. Aban Bana, while delivering a lecture "An Effective School System based on Rudolf Stiener Anthroposophy" recently

Ms. Aban Bana, and Indian Parsi, studied the system in Switzerland for five years. She

has taught in Rudolf Stiener school in Basel, Switzerland, for three years. She has returned to introduce the idea to her homeland and is presently teaching at Max Muller Bhavan.

Rudolf Stiener, an Austrian philosopher and reformist, founded the Anthroposophical Society and according to Ms. Bana "the Rudolf Stiener system of school education is widespread in many parts of the world, but in India, however, it is practically a new concept." It aims to educate the child not only intellectually but also morally.

The human factor of teaching should not be neglected to the background and the spiritual aspect of a child should not also be lost sight of, said Ms. Bana.

Stressing the role of teachers, Ms. Bana said that they should devote themselves whole-heartedly to educating the child through understanding and by bestowing individual attention.

Expending on the functioning of the Rudolf Stiener system of education, she explained that these schools had no principals and all the teachers worked as a team. The school fees determined by the income bracket of the parents and as such the economic factors do not pose a problem. This helped children from all walks of life to attend schools.

Projection of values for cultivating cogent attitudes in both sexes is what the handbook aims at. It includes projection designs in languages (Hindi, English, Sanskrit and Urdu), social sciences (geography, civics and history), mathematics and science for teachers at the elementary stage.

"The handbook is meant for teachers to exercise their ingenuity in helping children interpret social facts from the point of view of cultivating scientific temper which alone is conducive to the status of women in society." Again, while projecting values in language (Sanskrit), the handbook states, "the Sanskrit teachers have an easy access to the Vedic period when women enjoyed a very high status in society."

" Inter-house competitions, naming houses after 'Mahila Rishis', arranging exhibitions depicting the high status of women in Vedic and Upanishadic ages, collection of stamps issued in honour of women who had done meritorious services in any field——can provide such opportunities to boys and girls to make them realise that they are both important components of the society and together they have to share all responsibilities for the achievement of high ideals and national goals."

## Projecting Status of Women

'STATUS of Women Through Curriculum', an elementary teacher's handbook, is the result of deliberations in several conferences at which some values were identified by subject experts, school-teachers, teacher-educators, curriculum framers, textbook writers, educational administrators and resource persons from NIE.

Brought out by the Women's Education Unit (WEU), of the NCERT, it reflectes values commensurate with the status of women. It takes into its scope identified values and disciplinary objectives also.

## Handbook for State Level Organisers

THE role of a teacher in the cause of universalization of education is considerable. They interact with children at various levels having a deep insight into their socio-economic conditions and the resultant mental make-up.

It is, therefore, imperative that teachers be given the correct kinds of training and orientation to produce optimum results. It is, however, not an easy task to cover all teachers in the country. To facilitate the cause, the NCERT took upon itself the responsibility of offering training courses to resource persons from various states,

who, in their turn, could take the responsibility for the organization of orientation courses for all the primary school teachers in their states

The Department of Teacher Education (DET) of the NCERT has so far organized three training courses and has trained ninety-three resource persons. During the courses they have worked out a suggested course outline which can be used in adapted/adopted form by the states in organizing orientation courses for primary school teachers

A Handbook for State Level Organisers by Dr. R.K Gupta contains write-ups on different topics to be covered in the courses and guidelines for the organizers

It has been recommended that these courses may be organized as correspondence-cum-contact programmes in order to "reduce costs and to cover all teachers within the shortest possible time."

# Guidance Services Make Headway

A RECENTLY conducted survey of the guidance movement in India brings to light that the development of guidance services has made some headway. Considering that this concept is relatively new to our soil, the expansion of taining facilities and personnel services in the area has been noteworthy.

The survey, conducted by the Educational and Vocational Guidance Unit (EVGU) of the NCERT notes that the number of schools having any kind of vocational guidance totals 10,546, of which 1,446 schools have either a full-time or part-time counsellor who looks after the guidance programme. The remaining schools have at least one trained careers teacher looking after occupational information service. The guidance programme in schools is carried out under the coordinating and supervisory services of state level guidance bureaus which exist as part of SIES, SCERTS or under departments of education

Nineteen states/union territories are having state-level bureaus of educational and vocational guidance or some guidance agency at the state-level These are: Andhra Pradesh, Assam, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Coordination committes, at the central and district level, comprising personnel from Departments of Education and Industries, look after smooth functioning in education and employments areas. Some guidance services are also offered at most of the universities and employment and information bureaus.

A number of universities have started full-time diploma courses in guidance which will in due course turn out a substantial number of fully trained guidance counsellors. The NCERT, New Delhi, Madras and Panjab Universities; Institute of Vocational Guidance, Bombay; College of Education and Guidance, Jabalpur; and Allahabad Bureau of Guidance are some institutions offering such courses. Besides, state bureaus of guidance and other state level agencies are also conducting three-to-six-weeks courses for training career teachers.

The EVGU, along with state level guidance agencies, is preparing guidance literature, charts and posters meant for school population, parents and teachers These efforts are expected to help in facilitating and popularising guidance services at the school and community level.

# Children's Literature

WHAT is the nature and quality of literature our children should be exposed to so as to make them better citizens with a firm and rounded personality ?

'Children's Literature : Preparation and

Evaluation' published by NCERT tries to grapple with this problem It is a collection of papers presented at a seminar conducted by the erstwhile Department of Textbooks of NCERT The papers discuss the principles and procedures for the preparation and evaluation of children's literature The seminarians included eminent editors of children's magazines, authors of children's textbooks from different languages, educationists, and teachers

The papers advocate the use of imaginative illustrations which help to motivate the child. The printing should be attractive so as to capture a child's mind. Value-oriented literature is essential to infuse into children a sense of righteousness, it is pointed out. It also stresses the need to slash down the prices of books so as to reach the maximum number of children of the country

Edited by Dr I.S. Sharma, the book offers suggestions for the procedures and tools for evaluating children's literature

## Alternative Structures in Education

WHEN 64 per cent children drop out of the system during a span of five years, there is undoubtedly something basically wrong with it, says Dr. L.R.N. Srivastava in his study on 'Alternative Structure for Universalizing First Level of Education with Emphasis on Disadvantaged Group'. Written for the Regional Office for Education in Asia and the Pacific, Unesco, Bangkok, it is an exhaustive study on alternative structures for education in India. It covers all the major programmes being conducted in this field, some of which are discussed here.

Today, the country has as many as 0.65 million schools and three million teachers The annual budget is of the order of Rs 30,000 million Socio-economic compulsions in families, particularly in rural areas and among the weaker sections, not-too-relevant nature of

curricular programmes and lack of essential facilities in schools are some of the many factors that together act as deadweight around the neck of universalisation of education. Even the existing facilities for elementary education are not utilised

*Great Asset*

Non-Formal Education has proved to be a great asset in supplementing the cause. It also partly provides the answer to the problem not merely because its strength lies in the weakness of the formal system but because it has a number of strong points to commend itself', advocates Dr Srivastava

The main thrust of the programme is to attack the problem in the nine educationally backward states with regard to children in the age-group 9-14.

The NCERT provides academic guidelines, prepares model curricula and instructional material and develops tools of evaluation. At the state level additional Directors of Education, SCERTs/SIEs work hand-in-hand.

This innovative idea has caught on. A large number of agencies are engaged in its implementation. The education departments of the states have been running 90 per cent of the non-formal centres

*Relevant Education*

The project Primary Education Curriculum Renewal (PECR) aims at qualitative restructuring of the curricula to make it more meaningful through gradual infusion of innovative ideas tested in the experimental education programme.

A total of 2450 schools in nearly all States and UTs are engaged in this programme. The project will be completed in four phases. The first and the second phase started in 1982, phase three starts in 1983 and phase four in 1984 which will continue up to 1987 By this time the entire

primary curriculum for Classes I to V would have been renewed and implemented The responsibility of the project is shared by the Union Ministry of Education and NCERT at the central level and state governments and union territory administrations at their levels The project is assisted by Unicef.

Development Activities in Community Education and Participation (DACEP) aims to secure and increase participation of the community in programmes of formal and non-formal education with a view to increasing the level of literacy, specially among women and children. It caters to the needs of those in the age-group 0-3, 3-6, 6-14, and 15-35

The first phase of the project was completed in 1981. The second runs through 1982-83. Seventy-two additional community centres were proposed in the latter. Fifteen states have taken up this project Initially in each of them two community centres have been established Survey of the thirty centres has been completed It has been proposed to raise the number of community centres from 30 to 102 In fact, 94 centres have already been established by now. Evaluation of the project will be undertaken in 1983 for which tools are being developed.

Another innovative project taken up is Comprehensive Access to Primary Education (CAPE) which aims to bring to the fold of education children in the age-group 6-14 who are presently out of school.

The participating states and UTs have been grouped into three (first group—14 states and UTs; second group—9 states; third group—6 states and UTs). Group I has 74 TTIs, group II has 260 and group III has only 23 inservice training centres. The project has started recently and it is too early to conduct an evaluative study.

*Pre-school*

Early Childhood Education (ECE) has proved to be a strong supplement to the alter-

natives. The programme has two major activities—initiating and strengthening the programme at the state level and establishment of Children's Media Laboratory Under the former a number of states have developed programmes for their pre-school children They have opened nursery and kindergarten schools, balwadis and creches, etc During 1981, training centres were established in all participating states, teacher-educators trained and nearly 280 demonstration pre-schools in the sample primary schools developed. During 1982-83 the activities proposed are, selection of 225 (125 in the current and 100 in the following year) additional training institutes, training of four (two each year) pre-school teacher-educators, training of about 12,000 teacher-educators (4,000 in 1982 and 8,000 in 1983). development of about 1,000 (500 each year) additional pre-primary schools in sample blocks and an annual evaluation of the impact of the project. The project is expected to be completed in 1983.

*Toys and Picture Books*

During the last five years surveys of locally available toys have been undertaken in six states and 14 titles of picture story books have been prepared and distributed A manual of games has been completed and radio programmes have been prepared. The material developed is being used by children of pre-primary and primary schools in participating states. These are also being fed into the Integrated Child Development Services Programme and the Rural Development Programme.

The Integrated Child Development Services Programme functions to reduce the incidence of school drop-outs. "The programme will not impart formal learning but will develop in each child desirable attitudes, values and behavioural patterns and aim at providing environmental stimulation."

Indo-Dutch Child Welfare Project promotes

activities to bring about an overall development of a child The Mobile Creches provide basic child care facilities to the migrant labour The main components of this programme are balwadis, tutorial facilities for grown-up children, health care, and so on. However, "it has been difficult to get suitable and trained staff to work in mobile creches", according to the paper.

The Non-Graded School System is another alternative method to retain students in schools and to avoid wastage and stagnation by abolishing the annual examination system and allowing each pupil to proceed at his own pace. The evaluation of the system indicated that there was a definite reduction in the incidence of wastage and stagnation in these schools as compared to that in normal schools.

Prahar Pathsala helps children to atend schools while they are engaged in their economic activities and to reduce the number of school hours. The Project, though accepted as an alternative model, could not sustain for long the interest of the pupils.

The Shift School provides scope to increase pupil-teacher ratios and make optimum use of educational facilities provided It has become the usual practise in the schools of Delhi

*A Great Success*

The Satellite Instructional Television Experiment extended to interiors hitherto unreached and became a great success Six states were selected from which a total of 2400 villages (400 in each state) were exposed to educational programmes.

Special structures have been devised for the different disadvantaged groups of primary school age. The second part of the study deals mainly with these

Among others, the programme on Educational Development for Women and Girls finds an important place Programmes for rural population, for socially backward groups or areas, urban slums, pavement dwellers, scheduled castes and scheduled tribes, underprivileged, nomads and physically and mentally handicapped children have been discussed in depth and exhaustive material provided.

The study also discusses a number of programmes which are planned or needed but as yet have not been designed It also brings out many other problems relevant to the issues discussed. A number of possible suggestions which could be useful in providing an altarnative strategy to our education system have been discussed in this study

# THE PRIMARY TEACHER

Vol. VIII   No. 3.   July, 1983

## CONTENTS

## TO OUR CONTRIBUTORS

We invite our readers—the primary teachers—to contribute to this journal profusely. The articles/features, clearly typed out in double space on one side of the paper only, should be sent to the General Editor, *The Primary Teacher*, Journals Cell, NCERT, NIE Campus, Sri Aurobindo Marg, New Delhi 110016.

# Comprehensive Access to Primary Education

THE WORKING GROUP on Universalization of Elementary Education, set up by the Ministry of Education, Government of India, at the instance of the Planning Commission, in its interim report submitted in 1978, had recommended that the strategy for the achievement of the goal of universalization of elementary education should be to help all the children in the age-group 6-14 years to learn on a full-time basis, if possible, and on a part-time basis, if necessary. It observed:

> At present our motto is , either full-time education or no education at all. This does not suit the hard realities of life because most children (about 70 per cent of the total) have to work in or outside the family and are, therefore, compelled to drop out on the ground that they cannot attend on a whole-time basis. They could receive education on a part-time basis but our system does not provide such education .. The goal of universal elementary education *can* and *should* be achieved through full-time schooling and part-time education ; but either should

be done without sacrificing the basic minimum knowledge of literacy, numeracy and inculcation of the social and civic responsibilities and in both these options the content of education should be meaningful and relevant to the socio-economic milieu and needs. Content of either channel should be such as does not thwart the scope of vertical mobility

One possible approach to the attainment of this goal is the development of a non-formal education system as a viable alternative to complement the existing formal system. Such a system would provide multiple entry points into formal schooling and would use many of the potential educational resources of the community, thus providing an education which is more relevant and also more accessible to disadvantaged populations than the formal system. The UNICEF-assisted project 'Comprehensive Access to Primary Education (CAPE)', is a part of the effort of the Government of India to meet *the minimum educational needs* of a large number of children hitherto unreached and to achieve the target of enrolling out-of-school children in the age-group 9-14 in part-time non-formal education programme. Under the project, locally relevant learning

materials (learning episodes) are being developed in sufficient quantity and variety for out-of-school children in the age-group 9-14 by decentralizing the process of curriculum development. The learning episodes are developed through the introduction of a training-cum-production mode into the curriculum of elementary teacher training institutes (ETIS) and/or into the inservice training courses for primary school teachers. The learning episodes, after processing and refinement, will be used in a network of experimental learning centres to be established/adopted and attached to the elementary teacher training institutes (TTIS)/inservice teachers' training centres (ITTCS) in the State and Union Territories (UTS) participating in the project. Thereafter, evaluation centres and accreditation services will be established in the state/UTS so as to enable the children enrolled in the learning centres to receive credit/certificate for their academic achievements...

## Major Focus of Cape

The major focus of project CAPE is on learners from the disadvantaged populations, girls and learners from scheduled castes, scheduled tribes and backward classes, in particular. Among these learners are those elementary school-age children who have never had the opportunity of attending any school and those who have dropped out at the early stage of elementary education. The project would also cater to the needs of slow learners attending formal schools. The educational programmes being developed under project CAPE are characterized by openness in time and duration of learning, openness in curriculum, openness in methodologies of instruction and openness in evaluation. The programme is so designed as to enable the learners to progress at their own pace on a part-time basis according to the convenience of the learners. The non-formal education programme being developed under the project, however, will cover in most cases only children in the age-group 9-14. Children in the age-group 6-8 are not proposed to be covered mainly because of the reason that children below nine years of age would not be mature enough to benefit through the non-formal education programme as also because of the fact that inclusion of children below the age of nine could indirectly have an adverse effect on the efforts for universal enrolment of children in the formal schools.

## Process of Curriculum Development

The salient features of the curricula and learning materials being developed under the project are their *relevance* to the needs of the learners—their *flexibility*, *local specificity* and relationship to socially useful productive work and the welfare of the local community and its needs. The curricula and learning materials are planned to reach diverse groups of children. They form a basis for a happy, healthy and productive life for children wherever they live. In order to provide learning experiences which are local-specific, flexible and relevant to the needs of the learners, the process of curriculum development is decentralized. This facilitates the development of locally relevant learning materials in sufficient quantity and variety so that the learners, especially those belonging to the disadvantaged sections of the society, will have access to learning materials which are closely related to their needs and aspirations

The enhancement of relevance of content through decentralized curriculum development is achieved through the derivation of learnable content from local-specific and real-life problems or issues or situations which are of relevance and significance and are of immediate concern to the learners The personal, family, community, vocational, social and development problems and activities, inclusive of socially useful productive work, provide an important source of content for the learning materials. The problems are identified on the sites or localities where the disadvantaged children reside The learning materials, thus, are not discipline-based textbooks consisting of a series of lessons/chapters but are in the form of self-contained and independent learning units which are multidisciplinary in structure and content so as to cater more effectively to the needs of learners of different abilities, preferences and interests. Such learning materials provide sufficient scope for developing necessary knowledge, skills, interest, attitudes and values in the learners.

Learning materials so developed are called learning episodes The main objective of a learning episode is to provide an eventful and unique learning experience to a learner, resulting in further educational growth and development. The material could be in the form of a capsule, a module, or a package, each of which is a self-contained and independent learning unit or a series of such independent units based on the specific needs and problems of the learners. A module is a self-contained and independent learning unit related to a specific real-life problem or issue or situation existing in the learners' environment. Thus in most cases, real-life problems, events and issues form the theme and source of content of the modules

A module which is based on the solution to a real-life problem is further divided into smaller self-contained and independent learning units called capsules Each capsule is written in a self-learning format, using relevant content derived from real-life situations and environmental experiences of the learners. Each capsule is designed to develop in the learners specific competence (ies) defined in terms of Expected Behavioural Outcomes (EBOS) It is tried out on an individual child or a small group of children and is then modified Since the solution to any problem depends upon the performance of a series of sub-tasks at a time, each capsule deals with a specific sub-task Thus, a module consists of several capsules and a capsule under a module becomes the smallest self-contained and independent learning unit

It is possible to group modules dealing with solutions to similar problems under a bigger learning unit called a package In other words, the modules having certain commonalities in terms of the problems and their solutions form a package. Thus a learning episode, depending upon the coverage of the problems and their solutions, could be in the form of a capsule, a module or a package. However, the starting point for the development of a learning episode is the module. All the capsules under it are identified only with reference to the solution to a specific problem or the theme upon which the module is based Subsequently, a package is identified when modules dealing with similar themes, issues, situations or problems and their solutions are developed.

The packages, the modules and the cap-

sules are assigned numbers. The first digit from the left indicates the number of the PACKAGE, i e 1, 2, 3, N. the second digit from the left indicates the number of the MODULE under the package, i e 1-1, 1-2, 1-3.. 1-N and the third digit from the left indicates the number of the CAPSULE, i e 1-1-1, 1-1-2, 1-1-3 1-1-N.

The central features of the learning episodes are their flexibility and close relationship of their structure, content and methodologies to the environment and the community in which the learners live. They are generated from the environment and surroundings of the learners in order to ensure that they have relevance to the socio-economic and cultural development of diverse groups of learners Except in some simple cases, many real-life problems are complex and, therefore, the solutions to these problems require an inter-disciplinary approach Therefore, being problem-centred and work-based, the learning episodes lend themselves to the natural integration of different subject areas and disciplines. The content and methodologies in the learning episodes provide scope for developing the competencies related to different subject areas and disciplines taught at the elementary stage of education as well as developing skills in problem-solving and decision-making, enhancement of self-reliance, self-concept and self-control, development of appropriate interests, habits, attitudes, and values, and in *learning how to learn*. Thus, education of the learners is not only *for* life but essentially *in* life itself. Efforts are made to establish a continuity between learning experiences acquired in the home and community and those acquired under contrived situations at the learning centres.

Under the project, learning materials are also being developed for use in situations where more formalized and structured learning would be required, especially in core areas such as literacy, numeracy, environmental awareness and science-related skills. These learning materials are also being developed in modular format so as to make them suitable for intermittent learning and individual pacing of learning

While the strategies for decentralized curriculum development provide for the possibility of producing varieties of learning episodes relevant to the needs, preferences and interests of diverse groups of learners, it is essential that these learning episodes be linked to a defined list of critical competencies (behaviourally defined), applicable to both in-school and out-of-school learners, whatever the modality of learning may be. Therefore, the learning episodes keep in view specific Expected Behavioural Outcomes (EBOS) which would serve as a common reference for the evaluation of both in-school and out-of-school children so as to enable children enrolled in the learning centres to obtain proper certification for their achievement as well as to take advantage of multiple entry facilities in regular full-time schools later on, if they so desire.

The learning episodes are designed to impart literacy, numeracy, techniracy and functional skills related to solutions of local problems and those related to environmental needs. The number and variety of learning episodes are such that the study of learning episodes covering about 1,200 hours of learners engaged time, spread over a period of five terms/semesters of about 120 working days each, would enable a child in the age-group 9-14 (who, in terms of competence, is at the level of a new entrant in Class I in formal schools) to attain the

competencies expected of children by the end of five years of primary education in formal schools A further study of learning episodes covering an additional 1,200 hours of learners engaged time, again spread over a period of five terms/semesters of about 120 working days each, would enable him/her to attain the essential competencies expected of children at the end of the three-year middle stage of education in formal schools. Therefore, the study of learning episodes covering a total learners engaged time of about 2,400 hours, spread over a period of ten terms/semesters of 120 working days each, is expected to enable children enrolled in the learning centres to attain the essential competencies expected of children by the end of eight years of elementary education in formal schools. Thus, it is envisaged that in ten terms/semesters covering a period of about five years, it would be possible for a child in the age-group 9-14 enrolled in the learning centre to attain the essential competencies expected of children by the end of eight years of elementary education in formal schools However, for the drop-outs from the formal channel of education, the total period of study would be less than ten terms/semesters depending upon the stage at which they dropped out, and on the level of their competence at the time of their enrolment in the learning centre...

**Production of Learning Episodes**

All the elementary teacher training institutes in the country are involved in the process of development of learning episodes under project CAPE. The learning episodes developed by the teacher-trainees may vary in quality and, therefore, require careful processing and refinement before they are selected for publication. The draft learning episodes developed by the teacher-trainees are initially screened by the teacher-educators and the best of them are selected for further processing and refinement The processing and refinement of the draft learning episodes is undertaken with the help of workshops of teacher-educators of TTIs. These workshops are generally conducted at a decentralized level. During the workshops for processing of learning episodes, each component and section of the capsule under every module is critically examined and modified.

After processing and refinement, each module is subjected to content editing by a content specialist and language editing by a language expert. This is followed by the preparation of appropriate illustrations for the capsules under each module. The finalized modules are then scrutinized by an Advisory Board at the State/Union Territory level, and the modules approved for publication by the Advisory Board are printed for use of children enrolled in the learning centres

It is proposed to publish some of the best modules developed by the teacher-trainees every year However, the number of learning episodes developed in a State/Union Territory would vary according to the number of TTIs in the State/UT and the number of teacher-trainees admitted to each of the TTIs every year. By the end of the third year of training-cum-production mode in TTIs, in terms of the number of the learning episodes developed, the majority of the States will have an adequate number of modules developed through their TTIs. These could be utilized in each of the learning centre established/adopted under the project. These learning episodes, how-

ever, may not cover the whole of the critical competencies expected to be attained by a learner They may also not be as local-specific as is, ultimately, desirable. Nevertheless as the process of training-cum-production mode continues in TTIs and more learning episodes are developed and published during the subsequent years, the learning episodes will inevitably become more and more local-specific in relation to a particular TTI

In the case of states and Union Territories where the number of TTIs remains small, even at the end of the third year of training-cum-production mode in TTIs, the number of learning episodes developed and published may not be sufficient for establishing or adopting learning centres under the project In order to overcome this problem at the initial stages, it is proposed to utilize learning episodes developed in the neighbouring States and Union Territories, but having similarity in certain respects with the problems and conditions of these states/ Union Territories. No doubt, local relevance of the learning episodes will certainly be affected even if the areas have certain similarities in terms of the socio-agro-economic variables Therefore, as soon as a sufficient quantity of local-specific learning episodes are published and made available to the learning centres in a state or Union Territory, the utilization of learning episodes developed in its neighbouring states and Union Territories will be discontinued

### Establishment of Learning Centres

The majority of out-of-school children belong to the disadvantaged sections of the community including the scheduled castes and scheduled tribes, backward classes, landless agricultural labourers and urban slum dwellers Most of them are not attract-ed towards formal schools because of reasons which are predominantly socio-economic. Boys and girls from the disadvantaged populations are required to help to augment the income of their families and to help in household chores The need, therefore, is to provide educational facilities according to the convenience of the out-of-school children in regard to places and timings and in a manner in which such children would be in a position to complete at least the elementary stage of education within a short time, simultaneously carrying on with their work required by their families Therefore, the learning centres under project CAPE are proposed to be established in localities/villages of disadvantaged populations having a large number of out-of-school children in the age-group 9-14

Admission to the learning centres will be open to any child in the age-group 9-14 and grouping, if any, of children will be done only on the basis of the entry level performance and not on the basis of the age of the children. The educational programmes at the learning centres will be so designed as to enable the learners to progress at their own pace

Under the scheme of non-formal education for elementary age-group children sponsored by the Ministry of Education, Government of India, a large number of non-formal education centres have already been established in the states and Union Territories, especially in the nine educationally backward states — Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Madhya Pradesh, Uttar Pradesh, Orissa, Rajasthan and West Bengal—in which the number of out-of-school children in the age-group 9-14 are disproportionately larger In the case of states/UTs which have already established

non-formal education centres, the state/UT government would either establish separate learning centres under project CAPE or adopt some of the existing non-formal education centres and convert them into learning centres under the project Once the existing non-formal education centres in a state/UT are adopted under project CAPE they would be run by using exclusively the learning episodes developed and published under the project. In the case of states/UTS which have no functioning non-formal education centres, it is envisaged that the state/UT government would establish an adequate number of learning centres for implementation of the second phase of project CAPE.

Learning centres are proposed to be established/adopted in two stages—pilot stage and wider introduction stage. During the pilot stage, one learning centre attached to each of the TTIS/ITTCS will be established/adopted by the state/Union Territory government. The pilot stage will be followed by the wider introduction stage during which a few additional learning centres around selected TTIS/ITTCS will be established/adopted by the state/Union Territory government. The number of learning centres attached to a TTI/ITTC would, however, vary from one to five per TTI/ITTC depending upon the number of out-of-school children available in the localities around it The total number of learning centres proposed to be established/adopted in a State/Union Territory would, however, average out three per TTI/ITTC while individually varying from one to five per TTI/ITTC...

### Establishment of Evaluation Centres

Associated with the establishment/adoption of the learning centres is the develop-ment of question banks and establishment of evaluation centres for accreditation and certification of learners enrolled in the learning centres The test items for question banks are being developed with the help of teacher-educators and inservice teachers and these will be stored either in the form of books/cards and/or in small computers in the evaluation centres. Although intricate, complex and sophisticated at the development stage, care will be taken to make evaluation procedures as simple as possible State-wide and nation-wide norms will emerge for deriving grades and for inter-district and inter-state comparison.

The evaluation centres and accreditation services are proposed to be established in three stages. During the first stage one evaluation centre will be established at the RDRC (SIE/SCERT) level in each state/Union Territory. The remaining stages will see the establishment of evaluation centres and accreditation services by the state/Union Territory government at the district level and possibly below at the education district/block level These would become the bases of decentralized accreditation services leading to the development of an open learning system.

### Research and Development Activities

In order to implement the project effectively it is imperative that simultaneous attempts are made to collect and analyse supporting data on all the academic and administrative aspects of the project. Therefore, it is proposed to take up systematic evaluation of the project as a whole as well as the different components in the implementation of the project. In addition to this, it is also proposed to take up centrally

sponsored research studies related to the different aspects of the project such as factors related to the methodologies in the development and try-out of learning episodes, strategies and methodologies for imparting education to children from the disadvantaged populations and planning and organization of learning activities in learning centres.

Another vital area of research in the context of project CAPE is one associated with the learning disabilities of learners from the disadvantaged populations. The scope of these studies would cover a wide range of variables such as styles of learning, process of cognitive, psycho-motor and affective development, linguistic development, visual communication, typographical factors in communication, etc.

□

# Authority and Freedom in Play

K. RAJAGOPALAN

SURVEYING the social and political scene in India today, one is led to doubt whether the concept of freedom as applicable to countries with age-old traditions in freedom and self-government would be valid in the case of an emerging Republic like India where the fury of nascent nationalism and the lack of a graduated apprenticeship in self-management and liberty is taking its toll on all sections of our populace

The majority of those who take to the playfield, or are made to take to it, are students. Playfields are not confined by walls as a classroom. Those who come to the playfield do so with a pre-supposition that while they occupy it, they have a comparatively larger measure of freedom Play itself, and those who control it, suffer an inherent disadvantage in this implied and unearned sense of freedom that accompanies play. Nor, is anyone to be blamed for such misconceptions about freedom in play This popular attribute, however, gives rise to several problems which teachers of physical education, team managers and coaches, who control and guide play-activities, have to face

The misconception regarding play has led to an erroneous contrast of work with play. It is very wrong to associate work with authority, seriousness, discipline and purpose, and play with freedom, jollity, want of purpose and direction.

Perhaps concerned about this misconception John Dewey wrote : "Play is a source of freedom when it is enriched by the auth ority of outcome or purpose. Work is a source of freedom when it is enriched by a reflective interest in the activity itself. It is possible to be playful and serious at the same time and it is the ideal mental condition." Play that lacks direction and purpose degenerates into mere buffoonery That is what perhaps led J. F Williams, the celebrated writer on physical education, to stress 'purposeful enjoyment' as a necessary adjunct to play-activities

Again, there is little freedom in higher athletics Many who aspire to participate in the next Olympiad at Los Angeles, would have already started their rigorous training A hundred meters dash in international competition is won or lost not by seconds but often by a fraction of second, As a matter of fact, the athletes who got silver and bronze medals in the 100 meters dash at Mexico clocked the same time!

In a way, asceticism in its finer sense is

9

practised today by top athletes of the world. The living, eating and sleeping habits of a world athlete under training approximates to that of an ancient Rishi (sage) in rigour and self-discipline. Again, play could be a very serious affair and of concern to some. A Test batsman in cricket should be eternally vigilant of his form and health if he wishes to keep his place in the team.

It is dangerous for students to imagine that the playfield is an area where they could exercise maximum liberty. The very free-play and spontaneity of play entails and carries with it some implied and inherent responsibility. None to my knowlege who failed to sense this truth, won any worthwhile recognition or honour on the sportsfield. No one who fails to adopt the self-discipline needed could achieve the freedom they seek in the form of play. It takes months of rigorous and disciplined practice before a batsman can face good bowling in cricket with freedom and ease. This applies equally to all branches of sport.

If you have desire to be free from the annoying compulsion of looking at the keyboard of a typewriter every time you type you should subject yourself initially to the bothersome and monotonous fingering exercises. When once you pass through, the initial discipline you need not consult the key-board every time and you attain a freedom that is denied to one who sought to be free right from the beginning.

Much of the trouble that has arisen among students is due to the failure of educationists and student-leaders to recognize the fact that freedom for an adult citizen is different from that of a student. There is a tendency and temptation, especially in a rising democracy such as ours, to equate both the types of freedom. Once one has been enrolled as a student, be it in school, college or university, he ought in necessity to forefeit a certain degree of freedom. In a legal sense, a student is a sort of client in his relationship to those who educate him, and in a sociological sense he is in the position of a ward. It is a fallacy to demand for himself the freedom of an adult citizen.

This restriction of freedom is more emphatically evident when the student goes to the playfield. For, the speed, the special skills, and hazards of bodily injury and chances and temptations that are ever present for the abuse of freedom, should bind him to greater measures of self-restraint and discipline. It is enough if you wear a cap or hat when you go out for a walk. But it is necessary that you should wear a crash-helmet when you go for speed-riding. A wicket-keeper in cricket has got to wear heavy pads and gloves that surely restrict his freedom of movements.

The amount of freedom that we could give to students on the playfield would match their maturity. In proportion to their ability for self-management, we could give them freedom in participation. To illustrate, a physical education teacher might allow Class X or XII boys to play hockey among themselves with a student-leader for supervision. But he may not issue hockey sticks for Class V children unless the activity is controlled and supervised by a responsible staff member. Maturity, then, could be one of the considerations for the grant of freedom on the playfield.

So far, about aspects of freedom on the playfied as applicable to every society. But in reference to our country the behaviour pattern of students on the playfield has certain additional significance. The tradi-

tional student-pupil relationship in India should have some carry-over influence on the playfield. On my part, I would like the students to give to the physical education teacher the same respect and veneration that is iven to a classroom teacher. It has always been revolting to me when on a wet day the student-bowler wipes his slippery cricket ball on the coat of his teacher officiating as umpire or when an athlete returns from the field with his spikes stringed round his neck

Play is a must for the full development of personality, and freedom in it can come only through self-restraint and discipline In achieving the ultimate objectives of play, it is a lesser evil if the teacher controlling the activity errs on the side of authority rather than freedom Abuse of freedom on the playfield is more dangerous than elsewhere, for, the scope for mischief is all the greater. □

# Evaluating Pupil's Learning in Mathematics

V.P. GUPTA
*Primary Curriculum Development Cell*
*NCERT, New Delhi*

MATHEMATICS CURRICULUM for the primary stage of education is aimed at (*i*) thorough understanding of mathematical concepts, processes and skills ; (*ii*) developing in children the ability to perform various number operations skilfully and intelligently; and (*iii*) providing a wide variety of learning experiences that will ensure the ability of the pupils to apply when the need arises, mathematical concepts, processes, skills, and quantitative procedures effectively in practical situations, both in and out of school.

## Development of Competencies

To achieve these aims, it is necessary to identify those competencies that are most essential for enabling children to lead functional life in society after completing primary education, or to undertake the study of mathematics at the subsequent stages of education. Keeping this in view, the Primary Curriculum Development Cell, NCERT under the Primary Education Curriculum Renewal Project has identified a set of essential competencies in the area of mathematics that are required to be deve-

loped in children at the primary stage of education. The competencies have been so identified that these are to be developed at the mastery level by each child so as to lay a sound foundation during the primary stage of education. Also, to ensure proper development of the desired competencies, it is essential that the learning outcomes of each child are evaluated continuously.

## Evaluation Technique

Evaluation in mathemetics offers some problems as compared to other subjects of learning at the primary stage  The learning of a mathematical concept is not possible until the previous concepts are learnt thoroughly by children. Evaluation, therefore, needs to be done when the process of teaching-learning is taking place. Evaluation seeks to know how much children have learnt and how much they have yet to learn  In fact, the emphasis is on the later. The teacher should make all efforts to help the children who have not acquired the desired level of achievement. If the children are evaluated at the end of each unit or

topic and weaknesses in the learning of an individual child are removed, the children at the time of summative evaluation done at the end of a term or a year would not show any major or serious deficiency in their learning

Evaluation may be done with a variety of techniques and tools. Some of the suitable techniques that can be adopted for evaluation at the primary stage are :

1. Oral testing
2. Observation
3. Written testing

At the primary stage, in fact, no rigid system of evaluation can be prescribed The choice of technique's) mainly depends upon the nature of the competency to be developed in the children Evaluation integrated with the process of learning and a system of continuous recording of the progress of the pupils on the basis of oral testing and observation is desirable especially at the earlier stages of primary evaluation, i e. classes I and II The use of the technique of written test for evaluation can wait till the child comes to Class III However, it does not mean that the written test technique is not to be employed at all in classes I and II. It can be, if it is found essential. At the early stages, oral testing has got many advantages It provides an indication of how well the children have learnt the concept(s) and in which concept(s) they need remedial work. As soon as the child makes a mistake while responding orally to a question asked by the teacher, the same can immediately be pointed out to the child and a suitable method of remedying the same may be suggested then and there

EXAMPLE 1

To evaluate children's ability to name

correctly and in sequence the numbers up to 100, the procedure of oral testing is appropriate The teacher may ask an individual child to name numbers in his/her presence When the child is responding, the teacher can easily locate the errors in his learning. The errors may be of pronouncing correctly the number names or may be of sequential order of the numbers. Sometimes, it is also found that the child pronounces the number names correctly and in right sequence but with hesitation All these would indicate that the child does not have mastery over the number names. After knowing the nature of shortcomings a particular child has, the teacher should suggest remedial work to him with a view to improving his learnings.

EXAMPLE 2

To evaluate children's ability to identify the operation involved in a given problem, the technique of oral testing can be employed Let the children be asked a problem of the following type :

If Ram has 8 toffees and his sister has 3 toffees, how many toffees in all do they have ?

The children may be asked to tell the operation involved in the problem stated above. In case some of them find it difficult to respond, a hint such as "toffees in all" may be given by the teacher and then the teacher should see how many of them have now responded correctly. In this way, the teacher by putting several problems of this type can easily know about those children who have yet to develop the ability of identifying the operation involved in a given problem.

Besides oral testing, use of materials, aids

and play-way activities, such as educational games puzzles, riddles, etc. used in teaching the concepts, processes, etc may be made for evaluation purposes.

EXAMPLE 3

To evaluate a child's learning of basic addition facts, the following activities may be used  The class is divided into four teams  The teacher writes on the blackboard in 4 colums some addition facts (without answeis) as shown below :

| Team A | Team B | Team C | Team D |
| --- | --- | --- | --- |
| 5+4= | 6+7= | 8+9= | 5+5= |
| 8+5= | 7+5= | 9+2= | 4+7= |
| 8+6= | 9+7= | 3+8= | 9+3= |
| 3+9= | 8+4= | 7+6= | 4+8= |

The teams sit in rows just in front of the columns made  on the blackboard for the respective teams. On the signal of the teacher, the first child of each of the teams would come forward to the blackboard and write the answers of the facts written on the board for his team.  In this way, the teacher can evaluate the learning of the first child of each of the four teams, i e  learning of four children at a time will  be  evaluated. Similarly, by changing the sets of addition facts, the learning of all the second players of all the four teams would be evaluated Following this  process,  the teacher can evaluate each child's learning of basic addition facts

The other way of evaluating a pupil's learning could be based on the child's day-to-day work including home assignments given to him from time to time. The work done by the children in home assignments would indicate their level of learning It would also indicate how fast the child is learning the new concepts, processes, and skills

On the basis of evaluation done through any of the techniques, the teacher can identify pupils who have not learnt up to the desired extent of what has been taught to them. In the case of those who have not learnt up to the desired level, the teacher on examining the individual child's shortcomings should provide remedial work. It is not necessary that all children would make the same type of mistakes as shown below.

EXAMPLE 4

Let the children be asked  to multiply 25 by 5 and let us assume that they provide the following type of solutions .

| a) 25 | b) 25 | c) 25 |
| --- | --- | --- |
| ×5 | ×5 | ×5 |
| —— | —— | —— |
| 125 | 30 | 105 |
| —— | —— | —— |

| d) 25 | e) 25 | f) 25 |
| --- | --- | --- |
| ×5 | ×5 | ×5 |
| —— | —— | —— |
| 45 | 1025 | 95 |
| —— | —— | —— |

Out of the six solutions given above only solution (a) is correct and all other solutions are incorrect. The mistakes in all the five incorrect solutions vary. For instance, in solution (b) the child has confusion between the symbols of multiplication 'X' and addition '+'  In solution (c), the child has not included the carry-over. The children who have obtained these incorrect solutions need a different type of remedial work. The teacher should help the children in overcoming such weaknesses on an individual basis.

Evaluating the child's process of learning along with the product of learning is very essential. Obtaining a correct solution of a question does not provide guarantee for the child's thorough learning.

EXAMPLE 5

For evaluating a child's ability to make use of subtraction facts, let the pupils be asked to respond to the following questions :

(i) 3—2=    (ii) 15—8=    (iii) 9 - 6=
(iv) 5—2=    (v) 13—9=    (vi) 7—4=

It is just possible that a particular child might have correctly answered these questions by counting on. He may not have the mastery over subtraction facts. The use of subtraction facts by children can easily be ensured by observing the children when they are at work

EXAMPLE 6

For evaluating a child's ability to make use of multiplication facts, the teacher may ask the pupils problems of the following type.

If there are 8 apples in one bag, how many apples are there in 3 such bags ?

Obtaining the answer '24 apples' from a child will not ensure that has developed the ability of using multiplication facts. It is just possible that a particular child might have obtained the correct answer by counting the first group of 8 apples in one bag and then through the second and third groups

It is, therefore, necessary that the teacher should evaluate the process of learning along with the product of learning.

Mathematics is a subject where any kind of error/mistake, however negligible, is not desirable. Errors may be of different kinds. The children may commit errors in obtaining the final answer due to wrong numerical calculations, or they may have got the correct answer but the logic and mathematical symbols, etc used may be wrong. Such errors always adversely affect the child in his/her further learning. Below is an example of the types of errors that children of the primary stage normally commit.

EXAMPLE 7

Express 6 hours in seconds
*A child's solution*

$$
\begin{array}{r}
6 \text{ hours} \\
\times 60 \\
\hline
360 \\
\times 60 \\
\hline
21600 \text{ seconds} \\
\hline
\end{array}
$$

Answer .  21600 seconds

The above solution of the child has many errors. The result of multiplying 6 hours by 60 cannot be an absolute number, it should rather have a proper unit. Similarly, the result of multiplying a number (360) by another number (60) should be an absolute number and it should not have a unit. The correct solution would be as follows

1 hour = 60 minutes

Therefore, 6 hours = 60 minutes × 6
= 360 minutes

further, 1 minute = 60 seconds

so, 360 minutes = 21600 seconds

Thus, 6 hours = 21600 seconds

In view of the above, it is necessary that the teacher should examine the child's solution minutely, point out the errors in the solu-

tions to the child and provide the necessary help/guidance to him

Besides understanding various mathematical concepts, pupils have to develop skill in computation and the amount of progress achieved in developing skills in computation may be evaluated through class work. The teacher may note the speed and accuracy with which each child works and the maturity with which he uses various computational skills in solving various problems. Once it is ensured that the children have developed mastery over basic facts of addition and multiplication, he should not make use of the counting procedure in situations where the use of facts would have been more efficient

### Diagnostic Test

As soon as the teaching of a unit/sub-unit is over, a test, called diagnostic test, developed preferably by the teacher should be administered to the children with a view to locating gaps and shortcomings in their learning of that unit/sub-unit.

The following procedure may be adopted in the construction of a diagnostic test:

(a) *Content analysis :* The first step in the construction of a diagnostic test is the content analysis. For example, let us consider the unit of *addition of number.* Before analysing the unit into various learning points the teacher should have thorough knowledge and understanding of various learning points of the unit. The unit may include the following learning points :

1. Concept of addition—a process of putting together

2. Addition of numbers, sums not to exceed 10

3. Column addition of numbers, sums not to exceed 10

4. Zero combinations.

5. Addition of one-digit number to a two-digit number without carrying

6. Addition of two numbers of two digits without carrying.

7. Addition of three or more numbers of two or three digits without carrying

8. The 100 basic addition facts.

9. Addition of one-digit number to a two-digit number with carrying.

10. Addition of two/or three-digit numbers.

11. Application of the concept of addition in different situations.

(b) *Construction of test-items* The next step is to prepare test items for each of the learning points. The items should be worded in clear, simple and unambiguous language. The items should cover a large variety of questions on each of the learning points

(c) *Arrangement of the items.* When the items of various learning points are ready, these are to be a arranged in the form of a test. The items prepared on a particular learning point should occur together The items on different learning points should be arranged in order of difficulty level of learning points. The test is now ready for the use.

### Analysis and Remedial Teaching

After administering the dignostic test, its result should be analysed for interpretation leading to the identification of weak-

nesses in the learning of children. The responses of each and every child have to be examined thoroughly, noting down the nature of difficulty, if any The difficulties of pupils in the unit of 'addition of numbers' may relate to the following.

1. Concept of addition

2 The 100 basic addition facts

3 Arranging numbers in columns

4. Carrying in column addition

5. Carrying to the next column

6. Recording the answer figure correctly

7. Skipping to combine figures that are easy to add instead of taking them as they come

8 Applying the concept of addition in different situations.

The difficulties identified can further be classified under two categories :

1 Difficulties experienced by the majority of pupils.

2. Difficulties experienced by an individual child.

These difficulties have to be studied with a view to finding out the reasons for their occurrence The teacher with the help of interviewing the pupil can also come to a final conclusion regarding the difficulties of the pupil that stand in this way of learning. After determining these reasons, suitable remedial work should be provided For each of these learning difficulties, remedial exercises may be prepared and given to the children to ensure that they have thoroughly learnt the concerned points.

After remedial teaching, it would be better if a parallel diagnostic test is administered to see the effectiveness of remedial teaching In this way the teaching-learning processes can be made more effective.

Now, before starting the teaching of a new unit/sub-unit, it is necessary to find out whether the children are ready for the learning of new concepts of the unit/sub-unit or not; whether they have acquired mastery over the prerequisite concepts or not. For instance, if the new concept to be taught is the 'addition of unlike fractions', it is essential to find out whether or not the children have the ability to add like fractions and to obtain fractions equivalent to a given fraction. To ascertain that the children have learnt thoroughly the prerequisite concepts, processes, skills, etc. a test of short duration, say of 15 minutes, may be initiated.

Finally, evaluation of children's consolidated learning which they have acquired over a specific period of time, say two months, is also necessary. It is not sound to assume that if children have done well at the time when the concepts, skills, etc. were taught, they have acquired mastery over those concepts The assignments given at that time in the form of tests might have contained examples, problems and procedures taught to the children just then. It is also possible that the tests may have contained the type of questions that were used while teaching, The children might have remembered the questions and procedures of solving them by rote that were used or explained a day or two earlier and thus were able to obtain correct solutions without really understanding the concepts, processes, etc. The teacher may take the help of miscellaneous exercises given in the textbooks and get children's consolidated learning evaluated ☐

# Environment as a Basis for Meaningful Learning in Primary Education

THE IMMEDIATE surroundings of the child play a very important role as a basis for meaningful learning. While it is not a new idea, it assumes great importance today, as we attempt to make child's learning more effective and relevant Let us consider what we expect of a child who has been through primary school education. The primary education should develop :

—the ability to speak, read and write,

—the mathematical concepts and skills needed for dealing with money, measurement and other life-situations,

—the skill of observation, logical thinking, scientific attitudes towards learning,

—aesthetic senses and foster creativity of all kinds—music, drama, art, etc

—the body through games, sports,

—good habits and attitudes—team spirit, cooperation, responsibility, tolerance, cleanliness, etc

For more details please see .
*Using the environment as a basis for meaningful learning in primary education,* Primary Curriculum Development Cell, NCERT, New Delhi, 1980

—a desire to serve the community,

—an appreciation of his heritage and culture and strengthen the child's root in his own community.

The above expectations can be effectively achieved through an environmental approach to learning which involves the child in activities using objects and situations from the world around him, leads him to think for himself, to develop curiosity and links together many subjects. To illustrate the point take the following example  Ratna is a new teacher in Class I of a primary school Today she is meeting her class for the first time and has decided to spend some time knowing the names of the children, finding out about them and their families and organizing an informal lesson without textbooks

"Rani, what a pretty shirt you are wearing ! What colour is it ?"

"It is red, Madam. My mother stitched it for me. Red is my favourite colour."
"Madam, I too have a red shirt like Rani's only it has little flowers on it", says Gita. "I like red the best of all colours."

"How many other children here like red?", asks Ratna

She finds by talking to the other children their preferences of colours – some like green, others yellow and still others blue She divides the class into groups and sends them outside to collect (or point out) objects which are of these colours. "Look carefully, and pick up as many things as you can find which are RED in colour", she tells the first group Similar instructions are given to the YELLOW, GREEN and BLUE groups

Fifteen to twenty minutes later the groups reassemble in the classroom They arrange their collections on the floor and each child explains to the class what he/she has found, where it was found and speaks a few words about the objects. The RED group collects a flower, a piece of red cardboard from a packet of tea, a torn red kite, a red ribbon, a brick, a piece of red cloth, a red chilly obtained from the grocer's shop near the school gate, a piece of a red pencil, a bit of red wool and a piece from a red tin-can.

Ratna helps the discussion along, inviting comments from the children on the source of each object, its use, the different shades of the same colour, differences in shape, size, texture and so on She asks the group to sort out the objects on the basis of these qualities

When each group has shown its collection there is great excitement as they want to know which group has the largest number of things Children in each group count their objects and announce the results. This leads to further discussion on which group had the most, the least number of objects, whether there are more or less or the same number of objects in one group as compared to another. After discussing these issues, the children sit down to draw some

of the objects they have collected All too soon the bell rings and it is time for the children to leave. They go home happily, promising to bring more objects from their homes to add to their collections.

Ratna sits back to analyse what the children have learnt that day

1. They can recognize the four colours red, yellow, green and blue

2. They work with great interest, especially when dealing with familiar objects from the world around them.

3. There is cooperation developing as a result of group work and friendships are being formed

4 Self-confidence comes as a result of explaining their findings to each other.

5. They use their eyes to look, to observe, their hands to feel and to draw, their noses to smell, all their senses are used and sharpened.

6 They learn new words, names of objects, words describing them and they try to express in simple sentences.

7. They try to sort out their collections on the basis of different qualities.

8 They practise counting and learn the meaning of 'more than', 'less than', 'equals', 'most', 'least', etc

9. They enjoy drawing these objects and arranging them in patterns

Ratna feels her first day with the class has been a success She goes home planning for more of such sessions.

Let us consider Ratna's lesson to see what we can, as teachers, learn from it. Objects found in the environment were used

so as to develop in the children the skills of observation and classification, to improve vocabulary, to practise counting to develop concepts of size, shape, texture and mathematics It was an integrated approach in which different subjects were not separated The children went out of class for a short time, but much useful work was done in the classroom after they returned Children found their tasks most interesting as they dealt with familiar things. easily found by them. They developed team-spirit and learnt to work together with responsibility.

As environmental studies approach requires the teacher to spend much time in planning what is to be done However, the enthusiasm with which the children involve themselves in the various activities, their increasing desire to learn and the interest aroused in both teacher and students makes it worthwhile Children taught in this way are 'learning to learn for themselves', education becomes more meaningful, the teacher and the child are often finding out together.

### The Environment

The earth, with all its living creatures, dependent on each other and on certain physical conditions for life, forms the total environment in which we live. Within this there is enormous variety. To a child, his home, his family and friends, his school form the most important environment The home (or school) is situated in a neighbourhood—either a city, a village or a jhuggi-basti—which is the local environment.

The seas, rivers, lakes mountains, valleys, birds, insects, flowers, trees and other things make up the natural environment. Man has, in many places, changed the face of the earth creating a man-made environment.

However, we should not consider only things as part of the environment Our way of life, the relationships between people, our traditions—all these form the cultural environment These different aspects are all inter-related, affecting one another

Environmental studies is an approach where the education is through the environment, i.e. using environment for the development of learning skills The education is also about the environment, i.e learning facts and information pertaining to the environment. In so doing a child also learns how to appreciate, protect and maintain the environment, i e education for the environment.

In the primary school the child learns the basic skills of communication However, while he is learning these skills he is also acquiring some information about the world and learning to look after it in a limited way.

As we have stated earlier environmental studies provides an effective and different approach to teaching-learning, the major difference being that in the traditional method the child is generally a passive listener while in an environmental studies approach the child is an active participant in the teaching-learning process. In this process the child observes, asks questions, conducts experiments, makes interpretations and attempts to seek answers Such activities will encourage group discussions among the children and between the teacher and the children, rather than their accepting only what is given in textbooks. It will develop in the children the habit of finding out by various methods for details about the topic they are studying than are available in the textbook It will permit the

child to make decisions and help him in acquiring suitable values, which might otherwise only be imposed on him

Depending on the means available to the teacher a wide variety of methods can and should be used. It is important to realize that the syllabus is a guide to the teacher. Much more learning takes place using this approach provided the teacher remains flexible and does not rigidly follow the syllabus

## The Skills

In the primary classes, a child has to develop the skills which he will need later on to examine and interpret scientific, historical, geographical and sociological data collected from his environment. These skills may be put into the following three main groups

### 1. *The Basic Skills*

These skills are needed for communication in a variety of ways. They include :

(a) *Language :* Spoken—conversation, interviews. Written-prose, poetry, factual reporting, imaginative writing

(b) *Mathematics .* Starting from simple counting, sorting, measurement, addition, subtraction, multiplication and division, fractions, decimals, averages, precentages, etc leading to more advanced graphs and statistical methods

(c) *Creative art ;* All forms of art, craft, dance, drama, music.

### 2. *The Study Skills*

The development of study skills is necessary for the scientific and systematic study of all subjects in later years. An environmental studies approach places greater emphasis on these skills than was done in the traditional methods. These skills include :

(a) *Observation, collection, grouping, classsification* of (i) objects—leaves, plants, stones, etc., (ii) events—traffic survey, birthdays, etc. and (iii) other items—height, weight, age, etc.

(b) *Experimentation :* Finding out by doing. This generally involves three steps : (i) observation, (ii) accurate and careful recording of data and (iii) making an inference or reaching a conclusion. Experiments may include making estimates, graphical representation of data.

(c) *Seeking information :* Children may obtain information from people. This implies the ability to pose precise questions and to seek answers from suitable persons. Information may also be obtained from books, atlases, dictionaries, magazines and text-books.

(d) *Pictorial representation .* This may include graphs, simple maps involving understanding of direction, scale, routes and location of objects/places.

### 3. *The Social Skills*

Environmental studies give plenty of opportunity for group activity leading to the development of leadership, cooperation, and team-spirit, sharing, tolerance and respect for others' beliefs, suitable attitudes towards other people in the world—friends, parents, teachers—those who work for us, respect for living things in the environment, love of nature, cleanliness, etc

## The Activities

Each activity or group of activities leads

to a number of skills, that is, it is an integrated study, which develops knowledge in a number of areas. It must be remembered that environmental studies does not mean that the students spend all their time outside the classroom. The first outdoor activity is usually a starting point for a number of further activities which may take place inside the classroom

It is necessary for the teacher to plan the activities so that the children are interested and kept busy for a sufficiently long time. Without planning, the lessons may become useless as the children finish the activities quickly, and they do not take trouble to record them carefully and do not know how to use the collected information. In the first few attempts the teacher will perhaps feel that the traditional *passive* method where information is merely fed into the children is much easier to handle, especially with a large number of students. If, however, children get used to working in small groups, they become more independent of the teachers for their learning, leaving the teacher free to give more attention to the weaker students

Another important point which might be considered is that all lessons may not lend themselves to this activity style of teaching. There will still be need for lessons to : (i) reinforce concepts which have been introduced by an environmental activity, i.e. drill in mathematical operations, and (ii) introduce ideas which are not connected with the immediate environment, i e. knowledge about distant lands. □

# Creativity and Teaching of Science at the Primary Level

A.B Saxena

*Lecturer in Physics, Regional College of Education, Bhopal*

THE IMPORTANCE OF FOSTERING creativity in classroom cannot be over-emphasized It is a matter of concern to teachers, psychologists, teacher educators that creativity declines from 90 to 10 per cent among children while they grow from the age of five to seven years, and further by 22 per cent as they grow from eight onwards. For the purpose of this paper creativity means what Torrance defines as 'the process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on identifying the difficulty, searching for solutions, making guesses or formulating hypotheses about deficiencies; testing and retesting them and finally communicating the results'.

It is proposed to examine here the provision of creative methods of teaching and to see how far and in which way these can be actually implemented in the classroom. This becomes still more important in micro-lesson plans for teacher training

Creativity can be emphasized in the classroom in two ways : (*i*) It may be treated as an independent subject like drawing, history, and imparted through exercises, graphics, examples, etc. or (*ii*) The existing curriculum can be thought of as the essential core and an attempt can be made by integrating various kinds of exercises to build the right kind of environment in the classroom so as to enhance creativity in the children. We shall follow the former approach and see what kind of behaviour and activities can be performed by the teacher while teaching science at the primary level The approach is based on the belief that every individual has a surplus of mental and vital energy far in excess of his biological requirements. This surplus energy is constantly seeking expression and realization in various forms. In the procreative environment, this expression of energy is more easily achieved in creative act.

However, in so far as classroom teaching is concerned, there are many conditions, internal as well as situational, which tend to block creativity. Some of these are :

—Over-emphasis on performance and time-limits by the teacher.

- Over-emphasis on the product than the process
—Tendency cf teachers to punish children who show evidence of emotional sensitivity, intellectual skepticism, idealism
—Undue emphasis on practicability and usefulness
—Intolerance of playfulness in self and others.
—Pressure from teachers and parents for conforming behaviour
—Neglect of the needs of the situation
—Desire for a quick solution
—Evaluative attitude of everything right from the beginning.

Therefore, in order to be creative the teacher must incorporate the following in his teaching and behaviour :

—Children may not be asked to perform an act too quickly. Nor is it necessary to examine every act and product for high standards.
—Latitude should be given for originality and uniqueness. New, original questions may not be suppressed
—Unnecessary fear of being wrong may be minimized and a sense of taking risk may be encouraged.

### Procreative Conditions for Creativity

The conditions which encourage creativity are, again, internal and situational both. These can be like the following ·

—Non-competitive, non-evaluative contests, incorporating games, plays, and other similar activities.
—Wide interest, lack of external restraints.

—Freedom to work at self pace and to try out new alternatives
—Atmosphere of mutual trust
—Receptivity to new phenomena
—Situation-related motivation.
—Realistic self-appraisal and self-discipline.
—Permission of risking some error, waste or failure in order to achieve a new organization, order or form

### Implications

The most important thing which comes out is that we do not need to teach how to think creatively When unhindered, creative production is automatic. However, in almost every individual the creative process is seriously blocked and it is this blockage which is to be removed. For this we have to provide such conditions or environment that facilitates the creative process If we could learn how 'not to interfere' with the inherent capacity to think creatively, we would have done our job.

The following guidelines are directed towards active methodology in teaching for encouraging creativity among children :

—Active involvement of the learner
—Positive, democratic and creative environment (neither anarchy nor regimentation).
—Admonitions for being dependent are inadequate. They should be given opportunity for being independent to take decision
—Difficult situations should be treated as opportunities for creative problem-solving techniques.
—Develop an attitude of openness, self-directed learning, and doing.
—Provide systematic training in problem-

solving and skills of independent research and inquiry

—Incorporating ego-building behaviour such as praise, acceptance, understanding

—Treating creativity as an integral part of teaching

Science teaching methods such as problem-solving, discovery, open-ended experiments, projects, stimulating discussions can promote student activity and creativity. Indeed, as Guilford believes, creative thinking and problem-solving are essentially the same mental phenomenon. When a problem is solved whose solution is not known earlier, there is an element of creativity in it, however small it may be

However, the important point is how creative methods can be implemented in the classroom. What steps a teacher will take care of? Some of these are summarized here.

*1 Initiating a problem* A problem can be raised by the teacher or by the children For example, a child may ask the question, 'Are there plants in water?' He may like to study them. Some other child may be interested to find out the types of stones Sometimes the teacher may have to raise the problem and arouse their curiosity to the extent that they are keen to study that aspect In that, children must be permitted to take risks.

*2 Collecting the data* According to the problem chosen children may be allowed to collect the data and interpret it. The role of the teacher here may be to guide the discovery in an invisible way and that the whole discussion or activity may not go waste He may also have to tell the source of information sometimes A deliberate attempt to refine the data in order to focus

attention on the problem is also included in this step It may be remembered that the students of primary classes do not have normally the capacity to think in a formal way At this stage collecting data and interpreting in a simple manner may be sufficient

*3. Closure :* Creative people like to stop when their personal criteria are met The teacher must, therefore, encourage the children to take a decision of their own, when they want to stop. The children who ask the teacher whether their work is finished must be encouraged to think if they are satisfied and take a decision accordingly Some problems are such that the terminal points are decided in an obvious manner.

To illustrate the point further, we take here two units and mention various aspects which the children can study, choosing their own method·

| Unit I   Plants | Objectives |
|---|---|
| | 1  Identification of common plants. |
| | 2  Collecting the leaves and flowers of common trees and their classification |
| | 3.  Finding needs of different plants, such as sun, water, etc |
| | 4  Making diagrams of common plants |

| Unit II   Animals | Objectives |
|---|---|
| | 1  Identification of common animals. |
| | 2.  Finding the food habits of different animals |
| | 3  Classification of animals according to the way of movement, food habits, colour, staying condition, etc |
| | 4,  Making diagrams of interesting animals |
| | 5.  Finding unique features of animals |

The activities can be chosen according to the age of children and their capabilities. The environmental approach has lot of scope in creativity teaching.

### A Word of Caution

Important points necessary to be taken care of are summarized below:

1. It is needed to distinguish between independence and unruliness. The former has its source in new, independent ideas whereas the latter has its strength in malice The former should be encouraged and the later suppressed.

2. Healthy solitude and morbid withdrawal need to be tackled more tactfully and slowly so as to encourage children to work in groups

3. We need to distinguish between evaluation and censorship and judging and forejudging. Evaluation or judging may be based on merit, censorship or forejudging on other reasons Evaluation is good and helps to refine the solution, forejudging inhibits the process

4. We need to distinguish between remembering and discovering When a child gives some answers, the teacher has to discover what is the case. The former may help in becoming an encyclopedia, the latter makes a creative person

5. We need to distinguish between an unattainable goal and a difficult goal The unattainable goal often leads to dejection and the attainment of a difficult goal raises the aspirations further

6. We need to distinguish between an honest, creative effort and an intelligent manipulation of behaviour giving the impression of creative behaviour

The effectiveness of the widely used objective test is, however, limited to the information a child has acquired. The question then is · Is that all we want the child to gather? The answer is . No ! Evaluative teaching and learning must involve divergent as well as convergent thinking. Therefore, both memory and discovery need to be rewarded in order to make room for creativity. This is an important aspect to be kept in mind ☐

# Teaching Language through Games

### I. S. Sharma

LANGUAGE is an important part of one's life. In the absence of language life itself is only half complete. Language is the only medium through which the entire society consisting of different segments and the nation become cohesive and an individual without the help of language is handicapped in numerous ways. And once a person has command on language, he is considered, according to the role and the level of his command, a cultured and a capable person. It is this command on the language which results in the confidence in one's ability to communicate ideas, thoughts and experiences. This ability to express one's ideas that makes an individual different from the other.

It is a matter of regret that while language is so important in one's life, it is not given due importance at the primary stage in our schools. It is normally believed that there is not much need to emphasize the teaching of language because after all a child knows how to communicate But this is a mistake which teachers should not commit. Not only has the language of the child to be effective and enriched, it must also be mature. And these things are possible only in a school where any formal teaching of language takes place

We have started recognizing the need for teaching language. But the question remains which particular method of teaching language is easy as well as effective. Numerous methods of teaching language are known to us. Scholars have conducted researches in this area and found that the play-way method is the best. It is true that the aptitude of children are different but on one point all of them converge and this is that all children have interest in play and, therefore, the best method of teaching language is naturally the play-way method.

In these educational games one more thing should be taken into account, i. e. children who are mentally retarded should be given more time than those who are very intelligent. Such children should be given more practice also. We are suggesting a few games, with the help of which children can enrich their language, make new words and also new sentences. These games are such that intricacies of language of learning become automatically evident to the children.

1. The teacher can ask any child to start with a letter The next child could be asked in this series to speak another letter with the help of which every child should

be able to build words. This is a kind of circular acitivity which can continue in a given hour.

2. The teacher can write on the black-board a few words. He can ask children to come and recognize them. He can also give them cards on which certain words are written. He can expect these children to read those cards and bring paper flags, the names of which are written on the cards. Whosoever bring these flags first they should be declared winners. This entire exercise is to give practice to the children for recognizing words

3. Building of new words is yet another method of teaching language. A teacher can write on the black-board a big letter. Out of these big words they could be asked to make different words Using the same letter is even used in the making of the big word. For instance, the teacher could write the names of big leaders like Pt Jawaharlal Nehru or Maulana Abul Kalam Azad The letters used for the making of these two names could be reused by children for making other names or other words

4. The teacher can have two sets of cards ready with him On one set of card the teacher could write the professions people use, for example. washerman, tailor, farmer, carpenter, postman, coolie, etc. On the other set of cards he could make the figures of these persons. The children could be asked to arrange these two, i e match the profession with the figure of the person pursuing the profession. This matching exercise can also be done in several ways, i.e. the children could be given one set of cards and the second card could remain with the teacher who may ask individual children to come to him and pick up that figure from amongst the cards he has which matches the profession written on the child's card

Numerous other methods of/ teaching language are already in vouge. For instance, making a new word from the last letter of the word spoken by a child or reciting poems on the same pattern. The entire idea of teaching language through play-way is that it is very effective and yet it is not very expensive. There are several other games which the teachers can themselves think of. All games are welcome provided the goal of teaching is not over-looked We must keep the goal in mind and pursue it relentlessly.  □

# Use of Puppets as Audio-Visual Aids

Naresh Kumar

THE USE of puppets as audio-visual aids at the primary stage is the most effective. It becomes uninteresting for the children if they are taught by the lecture-method. So, there is a great need for presenting the subject-matter in an interesting way in primary classes. The children listen to the conversations of the puppets with interest because their conversations are surprising and increase curiosity. The attention of the students can be concentrated for a long time by such method of teaching. In fact knowledge imparted with the help of puppets will be lasting for the students.

Plays, stories, etc. can be presented in an interesting way with the aid of puppets through interesting conversations in Hindi. There will certainly be difficulty in the teaching of grammar. Hence, grammar can be taught separately. The teaching of social studies such as geography, history, and civics would be easy and more comprehensive if these subjects are taught with the aid of puppets. If any child has got the problem of pronunciation his stammering and mispronunciation due to hesitation can be corrected by giving practice in pronunciation frequently behind the curtain and thus desired improvements are possible. Children like fairy-tales and stories of animals very much. These stories can be presented with the aid of shadow-puppets for imparting knowledge in an interesting way. The emotional rapport of the children is maintained with the help of puppets. The children will enjoy operating puppets and their emotional expression will be spontaneous and easy. There is a great need for creating good impressions in the children's minds in primary classes. So by demonstrating the inspiring lives of great men, the character of children may be formed. There must be demonstrations regarding sanitation, cooperation, and utilization of time.

The teaching of hand-skill and practice in drawing, painting and thrashing of paper can be included in the processes of making puppets. The process of making puppets will create an interest for constructive work and infuse in them a sense of dignity of labour. It has also been noticed that it would give more joy in comparison to the other basic-crafts because it gives them immense pleasure in making lifeless things living ones. This is learning through the play-way method. Hence, due importance in the syllabus should be given to the making of puppets along with other basic-crafts.

Now it is a matter of consideration which type of puppets should be used at the primary level. Glove-puppet would prove the most useful puppet for little children. The topics can be presented in a light way with the aid of glove-puppets. Thus the subject-matter, instead of presenting in a serious atmosphere, by the lecture-method can be presented in an interesting way. As a result, the interest of the students in their studies is maintained. If there is climax of imagination in the conversations regarding the fairies and ghosts, they can be presented with the aid of rode-puppets. String-puppets should be used in the teaching of topics related to complex ideas and demonstration of different gestures.

There is a need for proper arrangement for demonstration of puppets in primary schools. The education departments of different states should make suitable arrangements for training related to the making and operation of puppets for the teachers working in primary schools. □

# Purposeful Activities and Learning

HARMESH LAL

*Research Associate, Department of Teaching Aids*
*NCERT, New Delhi*

EXPLOSION of knowledge at an accelerated pace and progressive evolution of educational methodology during the first half of the 20th century have made formal and passive classroom obsolete. It is slowly and gradually turning into an experimental workshop where curiosity and discovery tend to play to major role in the in-built education system.

The aim of school is not to mould the child into rigid culture with fixed curriculum In a formal school system it is being widely recognized that the child has not only to learn reading and writing but most important for him is to acquire values of life. The new school reflects life-like situations and has rich provision for purposeful experiences for self-education, self-realization and social adjustment. Educational development like 'activity movement' and progressive education of the present era emphasize the role of purposeful activities Here one stresses the importance of scientific investigation Purposeful activities create ideal conditions for learning which shape and energize the total personality of the child.

## What is an Educational Activity?

The concept of 'activity' gives a psychological insight into the child's behaviour and learning. An activity has been defined by various educationists and no two writers seem to be completely agreeing to a set definition.

Many writers emphasize intellectual activity as a pronounced feature of the activity programme whereas a few emphasize physical activity There are others who emphasize both physical and intellectual activities. There are terms like purpose, interest, freedom and creativity which are often mentioned as salient constituents of activity. The organism is a self-regulating being which is interwoven with its environment, and which passes through a progressive construction of plan of action towards its attainment This is extended to the educative processes Purposeful activities are dynamic, mental or physical state which evoke a series of changes in the human organism directed towards the definite goal They are motivated by a purpose which is enriched by interest. All these persist and lead towards an

organization and successful completion of action.

## Activity-oriented Education

Activity-oriented education represents a revolt against verbalistic or strongly traditional style of learning. It is also opposed to the use of books as the primary and the only source of curriculum material. The new approach emphasizes preparation of teaching aids and instructional material, going on excursions, playing games, looking to the interest and needs of the child and reproducing life situations, etc.

There is an increasing growth of literature on curriculum construction which has evolved meaning and terminology over the years like 'activity curriculum', activity programmes, activity movement and general terms like problems and approach, units, resource units and unit of work which are becoming new concepts

'Learning by doing' or through practical experience is a universal principle which is recognized from time immemorial but the conflicts and confusion of the 20th century have affected educational theory and practices There is growing consciousness of the activity principle of learning. This has resulted in the re examination and restructuring of the aims and means of education

In order to bring viable changes, it is very necessary that the school be orgnized as a learning environment The experiences of learning may be real out of concrete and abstract activities. In order to make educational experiences real, it is emphasized that an environment may be provided for giving an opportunity for full development of the child's personality Subject-matter be enriched by probing the children's interest in art,

music, drama and literature to drive them for creative expression Progressive education develops the mind of the child to work in the environment which presents problems and opportunities for activities on the level of the child's experiences and with his power of comprehension.

## Activity School

Activity school may be called a project 'method school', 'child-centred school' or 'life experience school'. It aims at the growth, activities and initiative of the child rather than the traditional verbalistic approach The exponents of child-centred school are Parker, Deway and their associates Deway in his work *School and Society* (1899) underlined three important aspects that the child has to become the centre around which the entire application of education revolves, the ideal school is an expansion of ideal educational activities as practised in the school rather than in home and child be given enormous opportunities for personal activities to balance what he gets from the books, with a motive to acquire the basic skills and for aspiring to achieve the above principles, different units of work have to be planned. The child and not the curriculum should be the centre of learning activities. Learning takes place as a result of the activity on the part of the learner and self-activity becomes the focal point for the modern education in the school environment so that the child may depend upon it for an organized experience Hence a revolution against the entire education through books is in the offing. Education is an on-going life process which takes place as a result of integration of the past experiences. It is mainly through experimentation and active participation in

the school, society and home that the child incorporates the effect of activities

While we are engaged in an activity, we are bringing into operation our needs, purposes, interests and values which condition the activity and help in conceptualizing the physical and mental stimuli accompanying the activities.

### Organization of Activity

The selection and organization of activities is dependent upon the learning situation which is further conditioned by the needs of the children, resources of the school and the community It is also dependent upon the philosophy of the teacher and how far is he equipped with his profession Activities cannot be fixed and have to deviate depending upon the environment of the school Learning may completely disregard the boundaries of the conventional subject-matter. Diversified activities such as field trips, discussions, demonstrations, experimentation, questioning and enquiry approach may be made keeping in view the needs, problems and interests of the learners Activity is necessary for learning. A teacher cannot transfer knowledge from a book to a mind It is the thrill of activity or through experiences that makes all learning possible. The traditional system limits the types of activities

Activities are seldom reckoned as a teaching unit for carrying out in an individual classroom. The problems like planning, developing, evaluating, applying, investigating, discovering, interviewing, singing, taking trips, observing, etc are the wide range of activities which are often included in the teaching unit. Activities not related with the curriculum do not contribute to the teaching-learning process It is the core of activities, their content which make them meaningful and instructional. Activity just for the sake of an activity does not develop learning.

In order to determine the real ability of an activity it should contribute to the realization of the aims of education. It should be suited to the physical, mental and emotional characteristics of the individuals. The printed or verbalistic material does not fascinate the child He wants to draw or to make something to see the world outside the school. He has animated curiosity through experimentation, discovery and questioning. Whatever he learns through activities, he expands other bits of information Activities which are the basis of all experiences, are operated upon the organization of the curriculum but it is pity that majority of the Indian schools have failed to reconstruct the curriculum in line with these principles Science clubs and exhibitions at the district, state and national levels are some of the recent devices in this direction and a small beginning has been made. The major cause is the indifference and lack of understanding on the part of teachers who are inadequately prepared to construct and conduct a flexible activity curriculum. Individual subjects can be made richer by the introduction of more and more activities. Edgar Dale has underlined the role of purposeful activities in the form of rich experiences to which the learner must be exposed. ☐

# Why Do Children Forget?

## Causes and Remedies

HARI SHANKAR SHARMA

*Lecturer in Mathematics, Government Higher Secondary School
Basedi (Dhaulpur), Rajasthan*

WE ARE familiar with the phenomenon of forgetfulness on the part of children. What is forgetfulness? What one learns one day but cannot recall later on is what constitutes 'forgetfulness'. In other words, it is the opposite of 'memory'. But this is apparently not true.

Recall is not the true touchstone of memory because even when we are not able to recall something already learnt, it becomes part of our experience. There are reasons why one cannot recall something. Absence of recall is partly forgetting but it is commonly believed that it is complete forgetting.

Ebbinghaus holds that forgetting is a passive mental process. With the lapse of time this process is almost automatic because in those moments the brain is completely passive. Some psychologists believe that it is an active passive mental process which means if one forgets because of the time lag, the mental process also has a role to play in it.

Sigmund Freud held the view that we tend to forget unpleasant things because the brain tries to repress unpleasant memories. If we try to recall something and retain it in memory for some time, we are not likely to forget it easily. Shock, use of drugs, tension, etc. can also contribute to our forgetfulness.

### Reasons

The following factors contribute to forgetfulness.

1. *Interpolated activities*. One of the reasons for forgetting is that after memorizing something if we undergo a series of activities which are interesting and also different from the one mentioned, we would tend to forget. Also, if there is a time lag between memorization and its use or recall, the chances are that one would forget.

2. *Law of disuse*. Constant use of memorized knowledge prevents one from forgetting. Therefore, forgetting can also take place because of the operation of the law of disuse.

3. *Retroactive inhibition*. One of the psychologists holds that several subjects interfere in each other's learning. The material already learnt also has a retro-

active inhibition The following factors have a negative impact on memory

(i) The age of the learner : With age and maturation individuals learn better and forget less

(ii) The time gap between the material already learnt and the new material presented If the latter is more than the former, it will have a negative influence on memorization

(iii) Similarity between the previous learning and the interpolated learning If there is a similarity between the material already learnt and the material given immediately after there are chances that the child would not recall things correctly For instance, if the child is asked to learn a Sanskrit verse along with geometry it is possible that the interpolated material will interfere in the child's learning process

(iv) Repression : Psychologists believe that there is a process like repression in the minds of people A particular school of thought holds that ideas are passed from the conscious to the sub-conscious. We can recall a number of things which should pass down to the unconscious level but those experiences which are painful are not likely to be remembered much There is a law in psycho-analysis which says that we tend to remember only pleasant things and repress those which are very unpleasant

4 *The quantity and the technique of learning*. Those subject materials which are learnt under a process of distraction are likely to be retained in memory for a much longer time than the materials learnt through unintelligent methods or through distraction-free atmosphere There are chances that one would not forget if one were taught properly which means that if there is over-learning of the subject a person would not forget it.

5 *The pace of learning :* As compared to learning with speed if one learns at a slow pace the chances are that a person would not forget that material.

6 *Equipment :* It has been noticed in the case of children that those materials which are presented in large quantities and repeated, they are forgotten much less as compared to the materials presented in small quantities and for a shorter duration. Similarly, useful material aids tend to help learning just as pleasant things tend to help a person remember the subject content quickly and for a longer duration.

7 *Absence of inspiration or lack of aptitude :* If a child is not motivated to learn a subject, he would not remember it. Therefore, this point in this direction has necessarily to be taken note of.

8. *Mental preparedness :* This simply means that mentally a child should be ready to learn because if this is so he will create conditions under which learning takes place easily and effectively.

9 *Motivation and Repetition :* Those children forget very quickly who do not think about the material learnt This thinking about the material which has been learnt forms part of motivation and the process is called repetition. Therefore, a child must repeat what he has learnt mentally, in order to remember it for a long duration.

10 *Use of drugs .* Those who use drugs tend to forget things quickly because drugs have an adverse influence on one's brain.

Regular use of drugs is highly injurious to health and also to memory.

11. *Brain injury :* A sudden brain injury can also lead to forgetting the past including the major events of life. Injuries to the brain should, therefore, be prevented.

12. *Changed circumstances :* The changing of circumstances and the association of learning with certain kinds of objects in the classroom are one of the facts of classroom teaching. If one were to change even the place of learning, the rate of learning would immediately be affected. Therefore, there is an association between the learning and the type of background which is provided for learning. Any change in this would lead to forgetfulness.  □

# Some Personal Traits of a Good Teacher

S. L. MAKKAR

*Assistant Professor, Extension Education*
*Punjab Agricultural University, Ludhiana*

MOST TEACHERS, like most people in other professions, cease to grow once they complete their vocational training and subsequently when they get into jobs. To them, it seems to mark the end of the journey They feel smug and stagnate, forgetting conveniently that the teacher's real education begins from where his training ends.

A good teacher never allows himself to stagnate. He is committed to his profession and thus keeps himself actively involved in the changes and reforms which may take place from time to time in the ever-expanding field of education. He remains a student all through his life retaining the child's inherent curiosity to know new things. In fact, he learns as he teaches and he teaches as he learns. With each passing year a good teacher becomes better by growing professionally competent. This quality of persistent and perpetual growth of personality distinguishes a good teacher from a bad one.

According to Tagore.

A teacher can never truly teach unless he is still learning himself A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to an end of his subject and who has no living contact with his knowledge but merely repeats his lessons to his students can only load their minds, he can't quicken them.

A teacher, therefore, must strive never to grow himself stale. He must remain fresh and new even while teaching the same lessons time and again. The ability to 'quicken' the mind of the students is indeed the glory of a good teacher. A teacher who losses his temper frequently does an irreparable harm to students. Apart from setting an emotionally unsound model before his students, he succeeds only in shaking the students' faith in him and thus retards their desire to learn

It is a well-admitted psychological fact that students learn very little from a teacher who they dislike. So a good teacher should make himself pleasing and likable. To win the confidence of his students, he must possess an inexhaustible fund of patience Anybody who knows a subject, can teach it to a quick intelligent student/learner. It is

the teaching of an average or slow-learner that puts the teacher's patience to a real test It has been seen that patience in such situations often wears off sooner or later even among good teachers

Some teachers, either due to impatience, natural temperamental irritability or to hide their own ignorance, ridicule or snub the students who reveal a natural or constant tendency to put questions in the classroom. Rebuking such students before the whole class can put sensitive students wound their sense of pride and might in certain cases permanently impair their desire to learn A kind of wall divides them from their students. These are negative qualities which impede rather than aid the process of education.

Students respect a teacher who is approachable and does not keep artificial distance from them A teacher who is not close to his students cannot awaken their spirits, both at the conscious and the unconscious level Students look upon their teachers, especially for those for whom they develop an inward liking, as their models and emulate them in their life styles. They pick up their particular mannerisms of speech, gait, general behaviour, attitudes, and even prejudices. In certain cases they even imbibe through emulation a teacher's handwriting It has also been seen that in certain cases, children coming even from broken homes and maladjusted families grow into responsible citizens when good fortune has thrown them under the care of good teachers A teacher, thus, exercises lasting influences which affect the general course of countless young children ☐

# Parental Involvement in the Teaching of Handicapped Children

TAPATI DUTTA

*Lecturer in Education, Regional College of Education*
*Bhubaneswar*

TO WORK effectively with parents of handicapped children, the teacher ought to understand the mental stress and constraints the parents have to go through in accepting their 'handicapped child'. Kubler-Ross (1969) suggested that one has to pass through five stages to face any traumatic conditions like dying. Duncan used those stages to understand the mental state of the parents of the handicapped children (Seligman 1979).

*Stage I—Denial :* This is a defense mechanism working unconsciously to avoid anxiety. Many parents deny the existence of any disability when diagnosed by specialists They go on searching for a more favourable diagnosis by other specialists.

In helping these parents to move out of this stage, the teacher should create a situation in which the parents (if willing) can see their child with normal children and with children having the same handicap, all of the same chronological age, of course.

*Stage II—Bargaining :* After a period of time, the child's exceptionality hits the feeling of denial again and again. There-fore, a sort of fantasy replaces the denial and parents start thinking that the child will become normal if engaged in some activities

During this stage the teacher can secure the willing cooperation of parents and he should involve them in teaching the chid.

*Stage III—Anger :* In trying to cope with emerging reality, coupled with the feeling of guilt towards their child, the parents often project their anger on some one—teacher, doctor, etc —who diagnosed the child's disability

The teacher can hardly help at this stage as the anger is often vented on him

*Stage IV—Depression:* The guilt feeling of these parents leads to self-condemnation, they feel depressed and give up all hope.

The most useful action the teacher can take when faced with depressed parents is to highlight the strong areas where the child can become successful

*Stage V—Acceptance :* The teacher's contribution in helping parents to accept themselves and their child, communicates a sense of caring and concern for parents

The acceptance is reflected through a variety of behaviour, such as ·

1. Parents are willing to attend parent-teacher meetings

2. Parents are able to discuss the problem without any mental constraints

3. Parents can abandon over-protective or unduly harsh behaviour towards their child

4. Parents are able to collaborate with teachers to make realistic short - and long-term plans

### Facing Different Types of Parents

The teacher has to face different reactions from the parents of the handicapped children (Seligman 1979).

1 *Hostile Parents* . Sometimes the parents become hostile and the angry feelings which are directed towards schools or towards teachers may really be the result of the anxiety over the poor progress of the child. The parents' anger or impatience can be relieved when the teacher indicates the areas in which the child is making progress. One of the most effective reactions to angry statements directed towards sources outside the school, is listening and paraphrasing in supportive manner by the teacher.

2 *Uncooperative Parents :* Sometimes the parents become uncooperative because they are preoccupied with family problems or have no time and energy to take special care of the handicapped child. They are absent from parents conferences due to anxiety, and since it becomes painful for them to hear about, or to work with, the child's deficiencies.

The teacher ought to approach such parents cautiously, realistically pointing out areas where the child demonstrates the strengths If the parents avoid "parents conference", the teacher should make home visits with fixing up appointments according to their convenience

3. *Perfectionist Parents :* These parents openly express their dissatisfaction before the child and the teacher when the tasks are accomplished imperfectly Such behaviour for a handicapped child is very undesirable because the consequences may lead to hatred towards the subject, teacher and school or whosoever is associated with that task, because the child's self-esteem suffers, further blocking whatever potential he may possess.

The teacher should explain the child's learning problems to the parents, and his limitations and potentialities. He should also point out that children respond differently to pressure Some thrive on it and others find it unbearable, especially, when one has some difficulties. The parents should be made to realize that praise and support, when the child does well, is a potent source of motivation to do better.

4. *Professional Parents :* These parents interfere with the teaching programme and curriculum but they respect the expertise and integrity of the teacher. The teacher has to set firm limits to parental interference. He should remember that he is an expert in teaching children whereas parents may be experts in other fields Hence information about the child as well as support and encouragement are to be provided to these parents

5. *Dependent Parents :* These parents have difficulty in making decisions or in accepting responsibility Mostly single parent families come under this category. The teacher's task is not to heighten his anxiety by turning away from them but, gradually,

to wean them away from their dependency. Decisions made and actions taken by such parents should be reinforced

6 *Over-protected Parents* . Such parents are anxious about their child's welfare They worry about his academic progress, yet their central concerns are centred around protection against physical or psychological harm. They do not allow the child to do what he is capable of doing and thereby make him more dependent. Another view is that it is a compensatory behaviour to make up for socially undesirable feelings such as rejection or negative feelings towards the child.

The teacher should continuously reinforce the independent actions initiated by the child Parents have to be told that the child should be given freedom to acquire skills and behaviours for independent thinking and living.

7 *Neglectful Parents* These parents resemble uncooperative parents except that the latter provide love, attention and support that the child needs at home

The teacher may point out to the parents the contrast in a child's response when he is attended to and when he is not. Such parents are rare and the teacher can help very little in such cases.

8. *Mentally Retarded and Emotionally Disturbed Parents :* While working with these parents the teacher should avoid difficult and abstract terminology The teacher should communicate information more than once because of their limited abilities

9. *Involved and Uninvolved Parents ;* Some parents genuinely want to be helpful and cooperative and have every intention of pursuing activities decided upon with the teacher but somehow find them impossible to initiate For some parents, the demands of other members of the family and their jobs make it difficult to implement good intentions Others working with their child highlight the child's deficiencies, thereby increasing their anxiety This leads to subsequent withdrawal

Teachers should neither project their own frustrations and emotions nor should they blame the parents for slow progress or want of responsibility

In this way, by helping the parents, the teacher can gain confidence and cooperation from them and establish rapport with them for cooperative ventures in helping the child to overcome his problems and be an effective member of society.

## Working with the Parents

Stephens and Wolf (1980) recommended that teachers should follow four steps when conducting parents conferences
1. Rapport-building
2. Obtaining information
3. Providing helpful information
4 Summarizing and recommending

Parental involvement in the teaching process of handicapped children is very important. The teacher has to depend on the parents for eliciting information for diagnosis and planning teaching strategies. Moreover, early detection and assessment, which is the first step in teaching handicapped child, is impossible without the help of parents. Besides, the handicapped child needs individual attention and repeated practice which is difficult for the teacher to provide, as he has to look after so many children So the teacher can involve the parents for practice and individualized lessons Hence parental involvement is an integral part in the teaching-learning process of handicapped children. □

# NEWS AND VIEWS

## Ten plus two system to be introduced in the Punjab

THE PUNJAB Government will introduce the 10+2 system of education from April 1984. The students now studying in Class X will be required to do a two-year pre-degree course followed by a three-year degree course. But, so far it has not been decided whether the two classes (XI and XII) should be held in school or colleges. The DPI colleges want the two classes to be attached to colleges on the plea that the schools lack the basic infrastructure for teaching of students of Class XI and XII, particularly in science subjects.

## New building for primary schools in the Punjab

THE PUNJAB Government has provided Rs. 2 crores for 800 new buildings for government primary schools during the current financial year for providing covered accommodation to all schools. During the past three years Rs. 3 crores has been spent on the construction of 800 primary school buildings, of these, about 400 buildings have been completed and the remaining are under construction. It is hoped that all the remaining primary schools in Punjab will have covered accommodation by 1985.

## New centres for non-formal education in Orissa

BY THE end of the year 1981-82 about 4,000 non-formal part-time centres were opened in Orissa. These centres were meant for the age-group 9-14. Of these, 2,400 centres were meant for 9 to 11 age-group and 1,600 meant for 11 to 14 age-group. Some of the middle level centres have been converted into primary level centres. The Orissa Government has made a budget provision in the current year for opening of more non-formal centres.

## Education through INSAT-1B

INSAT-1B will be utilized for transmitting educational programmes. The programmes will be meant especially for rural primary schools in the statets of Maharashtra, Andhra Pradesh, Orissa, Gujarat, Bihar and Uttar Pradesh. Two hundred villages in each of the three districts of these six states will be covered by this facility. For this purpose direct reception sets (DRS) are being provided

in the villages They will be supplemented by VHF sets which will be used for receiving the programmes relayed by ground stations and relay centres. This is to make maximum use of this powerful medium in villages.

A sum of Rs. 14 crores has been earmarked in Sixth Five Year Plan for educational television programmes through INSAT of which about Rs. 2 crores (or million dollars) is expected to come from the United Nations Development Programme (UNDP).

## Children's media laboratory

A CHILDREN'S media laboratory (CML) was set up in NCERT in 1971 with the support of Unicef. The specific objectives of CML was to develop and discover inexpensive, non-formal and effective media of educational entertainment value for children from 3 to 8 years of age. One of the major achievements of CML has been that an awareness has perhaps been created in the importance of using media in making learning more enjoyable and meaningful to young children.

In order to develop children's interest in reading and to help them learn to read better, CML has already prepared a set of picture story books in Hindi for children. They are colourfully illustrated and serve as 'read aloud' books for pre-schoolers and beginning readers for early primary school children. These books carry instructions for parents and teachers on how to use them and suggest related activities that can be organized to enhance language development. Under this programme 14 books have been published so far In continuation of the picture book series, a set of books has also been developed for the development of colour and form concepts in young children. A set of books for fostering sense perception in young children is also being prepared

## Educational play materials

THE AIM of this project is to demonstrate how effective learning can take place by using folk toys and other inexpensive locally available materials. The project has four aspects: (*i*) to conduct a systematic survey of the play materials and games available in the state, (*ii*) to develop manuals for teachers, (*iii*) to suggest lines in which these toys need improvement, and (*iv*) to devise new toys out of locally available materials.

## Games for children

THE GAMES developed so far include one board game to inculcate good habits of health and hygiene and the other for development of number skills. One game to enhance language development and another to inculcate good eating habits and awareness about the balanced diet are being prepared.

## Radio programmes for young children

THIS ACTIVITY includes monitoring and evaluating the appropriateness of the existing broadcast of All India Radio for children and to develop prototypes of programmes for children in the age-group of 3-8 years. So far monitoring of the tiny-tots programmes broadcast from Delhi, Patna, Simla, Rajkot, Pune, Bangalore, Jullundur, Madras, Trivandrum, and Jammu

has been done. CML has produced about 70 prototypes in Hindi and other regional langauges, i e Kannada, Oriya, Bengali and Punjabi, each prototype consisting of a 15-minute audio-tape programme of songs, stories, games, etc

Recently the CML has also developed two audio-programmes in Marathi for children The programmes, each of 15-minute duration, comprise a song, a story and a game To facilitate observation and memory in children the CML has prepared art work for memory cards. Besides these, illustrations for four conversation charts have also been prepared. The objective is to help verbal, expression in children. The following slide-cum-tape programmes have been completed . (i) Low-cost play materials, (ii) preschool activities, (iii) children

of the SES, (iv) water play, and (v) little fingers. Programmes on modes of transport, plants, our friends, Chai Ki Kahani and children of Arunachal Pradesh are under preparation.

## Travel fellowships

TRAVEL fellowships under the study visit scheme of CML for 1982 and 1983 have been awarded to nine persons. A two-day meeting to orientate the awardees about scope of the scheme was organized by the Child Study Unit The awardees discussed and finalized their study visit programmes at the meet Out of the nine awardees, three will visit institutions working in the area of special education for children □

# THE PRIMARY TEACHER

## CONTENTS

## TO OUR CONTRIBUTORS

We invite our readers—the primary teachers—to contribute to this journal profusely. The articles/features, clearly typed out in double space on one side of the paper only, should be sent to the General Editor, *The Primary Teacher*, Journals Cell, NCERT, NIE Campus, Sri Aurobindo Marg, New Delhi 110016.

# Training of Primary School Teachers in Scotland and its Implications for Indian Situation

SUSHI BIHARI MOHANTY

*Research Fellow, Centre of Advanced Study in Education*

*M. S. University of Baroda, Vadodara*

TEACHER TRAINING is of utmost importance for the development of a nation as the quality of teachers produced by teacher training institutions determines to a large extent the quality of school education. This is more in case of primary school teacher training programmes as in the primary schools foundation of life-long education is laid in a formal way. Realising the need for improvement of the conditions of working of school teachers the Government of India has recently appointed a commission on school education that will also look into conditions of teacher training institutions and the quality of their programmes. In such a situation let us analyse the primary school teacher training programme of Scotland, U. K. and find out if we have to learn anything from that.

Scottish system of teacher training has been the base for our teacher training programme. Teacher training institutions in Scotland are free to prepare their own curriculum. These colleges are not exclusively meant for primary teacher training. For instance, Moray House College of Education prepares teachers for primary schools, secondary schools, physically handicapped schools, prepares administrators including school heads for their jobs, etc. The programme of these teacher training institutions are approved by the General Teaching Council of Scotland, which is an autonomous body mostly managed by the representatives of teachers and which gives license to teachers passing out from teacher training institutions to work in schools situated in Scotland area of the U. K.

There are three types of primary school teacher training programmes: (i) three-year diploma course for school-leavers, (ii) one-year diploma course for degree-holders, and (iii) four-year degree course for school-leavers. The academic session starts in

October and ends next year in June. Besides, the college is closed for three weeks in December-January for Christmas, and for three weeks during March-April for Easter holidays. Some colleges observe mid-term holidays for two to three days. The working hours are generally from 9 A.M. to 5 P.M. on five days of a week—Monday to Friday — with one hour lunch break. In each academic session the college conducts teaching work for about 150 days. Student teaching covers one-third of the total number of weeks available in each year, which comes to roughly 30 weeks per academic year. For the three-year diploma course students it is nearly 90 weeks. Theoretical portions include education and psychology, primary school teaching methods and content knowledge. Each student-teacher is trained in use of audio-visual aids such as television, camera, projector, tape-recorder, etc. Regular seminars and term papers constitute part of course work. These programmes are evaluated throughout the year. At pre-practice teaching stage, the student-teachers are trained in different skills required for teaching such as the skill of questioning, skill of testing, skill of use of instructional aids, etc. The student-teachers also use video-tape for their self-appraisal. During practice teaching programme the student-teachers are attached to different school teachers who also act as guides and help student-teachers in preparing plans. At times, the school teachers plan jointly with the student-teachers undertaking activities like study tours, organize exhibitions, project works, etc. The practice teaching schools are spread over the whole of Scotland. The college staff members pay visit to these schools to supervise practice teaching programmes and they are paid for

undertaking such journeys. A candidate is generally informed beforehand about the date and time of the visit. The college staff member observes the lesson fully, notes down his or her observations and discuss them with the student-teacher immediately after the teaching of the lesson is over. During the absence of the college staff the teachers observe lessons and discuss their observations with concerned student-teacher. The evaluation of student teaching is generally done by the concerned college staff member in consultation with the school teacher to whom a student-teacher is attached. When a candiate gets 'E' grade, he or she is asked to deliver teaching for another four weeks in the forthcoming month of August.

## Implications for Our Training Programmes

1. *Duration* : The duration of our primary school teacher training programmes is comparatively less. There is no special grade for primary teachers having completed graduation and B.Ed. Hence graduates and postgraduates, when do not find seats in secondary teacher training colleges, go for admission in primary teacher training colleges. Primary teacher training is more important than secondary teacher training, Therefore, we need to consider the possibility of increasing the duration of training programme for school-leavers from present two years to three years and have separate one-year programme for graduates and postgraduates. Regional Colleges of Education have B.Ed (elementary) courses but much is to be done in making them really primary school need-based. They have not been able to cover various aspects of primary school teaching. As a primary school teacher is expected to teach various

subjects taught in the primary school, the trainee has to be taught all the methods.

2. *Removing isolation* Our teacher training institutions operate without any link with secondary teacher training institutions. There are instances of both types of institutions operating without mutual linkages although they function in the same building and often under same administration Much of the training methodology is common Again much of the resources can be used for common purpose. If operating cooperatively, the staff members can be benefitted from expertise of each other. It is, therefore, necessary to bring primary and secondary teacher training programmes under one roof and ensure effective dialogue between the two sets of teacher-educators and even explore the possibility of having common sets of teacher-educators For instance, in the State of Orissa provision exists for art teachers, physical education teachers, etc. in primary teacher training institutions, but not in secondary teacher training institutions. Recently, the National Council of Teacher Education (NCTE) has suggested a new curriculum wherein health, physical education and recreation has been included. The training colleges do not have physical education instructors. The instructors in primary teacher training colleges often sit idle. They do not have adequate work load. By integrating these two types of teacher education institutions one can utilize services of physical education instructors for both types of teacher-trainees. So also is the situation for art education They can have a common library and a common reading room, and more resources for subscribing different educational journals.

3. *Freedom to frame curriculum* · Our teacher training programmes are generally stereotyped in nature and follow one uniform pattern for a particular state. Mostly such institutions are affiliated to the Boards of Secondary Education or State Departments of Education which prescribe a common curriculum for all institutions affiliated to them. They have a common examination. Thus, the teacher-educators year after year continue to follow a set pattern and they do not try to introduce innovations in their systems It might be a worthwhile experiment to provide autonomy to some institutions on experimental basis and gradually extend it to others The standard can be controlled by introducing accreditation system through a common practical test before entry into job and once again after completion of probation period of at least two years. When present practice of evaluation is scrapped, the organizational climate and teacher morale in these institutions will improve a lot, as evaluation has been instrumental for growing corruption and nepotism there.

4 *Link with the schools :* An ideal teacher training institution is intimately linked with the programmes of its cooperating schools. Its staff members take regular classes in cooperating schools so that the methodology taught by them to the teacher-trainees is made realistic and acceptable to schools. This practice is not in vogue almost in all institutions of the country. Commensurate with this position, methodology taught in a teacher training institutions, in most of the cases, are left in the training institutions and not carried to school situations. The school teachers need to be partners of teacher training programmes. This will also improve their own teaching strategies. In case of such in-

volvement training institution has to give training to teacher on the areas pertaining to supervision and evaluation By involving school teachers, the training programmes will improve a lot.

5 *Improvement of curricula :* The teachers' training curriculum suggested by the NCTT has not covered all aspects It has given a few suggestions, which are mostly incomplete. It has not been able to spell out the methodologies to be adopted in teaching of theoretical courses. Therefore, a detailed curriculum guideline needs to be framed to focus attention on possible variations. There should be more stress on self-learning of teacher-trainees. There should be stress on giving model lessons utilizing various techniques taught in method theory courses and not just one lesson in a method subject given in a ritualistic manner. There should be more opportunities for seminars, term papers, action researches, etc. There should be provisions for visits to various types of schools and specifically to certain good institutions There should be periodic conferences between school teachers, training institution staff and students about various aspects of student teaching programmes. Supervisors need to observe full lessons and discuss their observation with the concerned student-teacher immediately after the teaching of the lesson is over. This practice will not make it possible to supervise all lessons taught in a school on a day Trained school teachers can take up the responsibility of supervising lessons not observed by training institution staff members. Again the content knowledge of teachers has to be ensured and, if necessary, upgraded during training period In many states, teaching of English starts from upper primary level. There is almost no effort in

teacher training programmes to improve the quality of English spoken by teacher-trainees. So also is the case with subjects like science, geography, etc. This requires a look into the quality of resources available in teacher training institutions

6. *Quality of resources :* The resources are of two types—human and material. Human resources are to be of better quality for imparting better teacher training. Most of our teacher-educators do not know how to speak English correctly. In such cases how can we expect the teachers produced by them to speak correct English. There is an urgent need for training teacher-educators in English teaching. This can be undertaken on priority basis by the Central Institute of English and Foreign Languages at Hyderabad. Similar is the need in case of the teacher-educators teaching subjects like geography, etc. The SIES and SCERTS should have experts in these subjects, who are properly qualified and experienced in primary school education

Material resources are also equally necessary. Most of our teacher training institutions are ill-equipped, e g throughout the State of Orissa there is no language laboratory in any teacher training institution. A Similar situation exists in many other states Provision of language laboratory can help teacher-trainees in improving their pronunciation Also there is need for various types of audio-visual equipments and subject rooms, etc. which require urgent attention to improve the quality of teacher training programmes.

Thus our teacher training programmes lag behind in quality mainly due to inertia among our teacher-educators and competent authorities There has been a lack of initiative on the part of the SIES and SCERTS.

Often they have staff members who have lost contact with school practice or had no idea about primary school teaching situations The necessity of primary school teaching experience for SIE/SCERT/SISE staff members has been overlooked. Teaching in primary schools should be a part of duty of these educators so that they can give realistic guidance to teacher training institutions. These institutions should have qualified staff members and also necessary resources. Of course, in most of cases, the inertia plays role Most of the available resources are often unutilized For instance, many SIE/SCERT/SISEs have mobile science vans which often lie idle They have films and such other audio-visual materials which are allowed to rust in the cupboards but rarely come out of them There is no systematic programme of dissemination of available resources. A few years ago many equipments had been distributed to teacher training institutions as part of Unicef-assisted scheme. There are instances where due to lack of understanding about the manner in which received packets are to be disposed large number of items of a particular type (for instance casette-recorder) have been lying with one institution whereas other institution is going without a single casette-recorder. Thus, one requires more sincerity from our authorities involved in teacher preparation programme Unless that happens, nothing much can be done. □

# Identification of Learning Needs of Non-Formal Learners in the Age-Group 6-14

P.K TRIPATHY

*Junior Research Fellow, ERIC, NCERT, New Delhi*

NON-FORMAL education is a developing concept in the educational scene It is life-centred It has a problem solving approach in education, relevant to the learners' environment. Non-formal education is a must for a developing country like India where more than 60 per cent of its population are illiterate. The huge amount of drop-outs affecting the educational scene of the country is responsible for the alarming illiteracy in the country In the context of universalization of elementary education, non-formal education plays an important role. Furthermore, universalization of elementary education could not be achieved so far because of the limitations of the formal educational system and the socio-economic and cultural conditions of the learners coming from the lower social strata. Realizing the importance of non-formal education, the Government of India in collaboration with the state government concerned decided to implement an experimental project on non-formal education in the educationally backward states, namely, Orissa, Andhra Pradesh, Assam, etc. For an effective implementation of the programme of non-formal education it should have a firm ground and sound beginning Designing of suitable curriculum is a prerequisite for this purpose. On the other hand, a better and suitable curriculum can only be ensured if the same is based upon the learning needs of the non-formal learners with regard to objectives, contents and instructional materials. The implementation of the experimental project on non-formal education in the context of universalization of elementary education has already started in the State of Orissa since 1980 But the programme has not yet gained adequate momentum due to several reasons, out of which lack of a suitable curriculum based on the learning needs of the non-formal learners is the most important one.

## Objectives

1 To identify different categories of non-formal learners in the age-group 6-14.

2. To determine the variation among the non-formal learners with regard to their academic standing

3. To determine the variation among the non-formal learners with regard to socio-economic background.

4 To identify the occupations in which the above categories of non-formal learners are engaged

5. To analyse and understand the learning needs of the non-formal learners with regard to objectives, contents and instructional materials.

## Hypotheses

1. The non-formal learners differ in respect of present academic standing and socio-economic status

2. The non-formal learners are engaged in different occupations for providing economic support to their families.

3. The non-formal learners differ with regard to the objectives, contents and instructional materials for their study

4. The Learning needs of the non-formal learners are occupation-oriented.

## Method of Study

*Sample :* The present investigation was confined to all the primary level non-formal education centres under the supervisory control of the S.T. Schools (W), Bhubaneswar. The sample comprised of 100 non-formal learners in the age range of 6-14. The purposive method was followed to select the sample for the study.

*Tools and procedure :* An interview schedule was developed by the investigator to collect information from each non-formal learner By personal interview with the non-formal learners individually, their response to each item of the schedule was obtained.

*Method of analysis .* The analysis of data for the present investigation was made in conformity with the objectives and hypotheses as formulated by the investigator. After collection of data the same were put into tabular forms to make the process of analysis easier. The data were analysed and interpreted in terms of percentages.

## Major Findings

1. Among the non-formal learners in the age-group 6-14, there is a considerable variation with regard to sex, age and educational background. Most of the non-formal learners are in the age of 12 and they constitute 25·7 per cent of the sample Further. it is found that the number of the learners in the age-group of 8,9,10 and 12 are considerably higher than the remaining age-groups. Similarly, in respect of sex both the boys and girls are coming to the non-formal centres. It is observed that with regard to educational background, there are two types of learners found in the non-formal centres . 59 freshers and 41 drop-outs.

2 It is observed that the non-formal learners differ in respect of their present academic standing and socio-economic status. It is found that the learners at the non-formal centres have different academic standing with regard to reading, writing and expression competencies. Most of the non-formal learners are coming from very poor economic families The socio-economic status of the non-formal learners differ with regard to the occupation and income of the parents/guardians. This finding confirms the hypothesis that the non-formal learners

differ in respect of present academic standing and socio-economic status.

3 It is observed that most of the non-formal learners are not engaged in any type of income-oriented occupation, Most of them are engaged in household chores, especially the girls The boys of this age-group are found to help their parents at times. This is also not regular. In this respect the tenability of the hypothesis, that the non-formal learners are engaged in different occupations for providing economic support to their families, may not be fully rejected

4. Most of the non-formal learners have suggested to have their education during the morning hours for a duration of 2-3 hours

5. It is also found that the main reasons for drop-out from the formal system are as follows :

(i) Poor economic condition of the family

(ii) Parents or guardians are not interested to send their children to schools

(iii) The learner has no interest to go to school.

(iv) Parents are unable to provide financial support for his/her education.

6 With regard to the objectives for the non-formal education all of them have indicated the following six objectives (i) to attain literacy, (ii) to attain numeracy, (iii) to acquire knowledge on citizenship, (iv) to improve vocational efficiency, (v) to acquire knowledge on health and hygiene, and (vi) to acquire knowledge on the working of developmental agencies and their effective utilization

The non-formal learners have also indicated their choice for the contents It is observed that the contents suggested by them for fulfilling different educational objectives are different from that of the formal learners with the conformity of the above objectives In respect of instructional material, all of them have preferred small booklets with necessary illustrations on different aspects They have also preferred some audio-visual aids for teaching purpose

As most of the learners in the non-formal centres are freshers, the learning needs are not considerably different They have merged their opinion towards some possible issues In this respect the hypothesis that the non-formal learners differ with regard to objectives, contents and instructional materials is not found suitable to be retained. □

# Need for Early Childhood Education

U. BEVLI

*Child Study Unit, NCERT, New Delhi*

RECENT census in India has revealed that about 50 per cent of its population is young and 25 per cent belonged to very young category. About 80 per cent of these children live in villages. In the cities, the slum children constitute the larger bulk of children, perhaps 60 per cent or more, living on what we recognize as slum conditions. In the villages, roughly 60 per cent of the children come from poor families of landless labour, migrants and marginal farmers. Although steps have been taken to reduce the figure, it is small consolation that childhood mortality between age of 1-4 is from 2-3 per cent in most of the developing countries.

Since the United Nations declaration for the Second Development Decade, all developing countries in the South-East Asia have developed socio-economic policies incorporating egalitarian principles and social justice. While the surge of activity has been prominent for learners of school-going age, national concern in most developing countries including India for the eduacation of children of the age-group 0-5/6 years has been in evidence only presently. The motivation for new national concerns find their basis in the overall concerns for social justice and equality. However, they may have been specifically motivated by a valid reason, such as drop-outs from the primary school system and poor achievement of learners from disadvantaged population, the need for custodial and other care for little children whose mohers are engaged in the economic sphere, recognition of the irreversible consequences of malnutrition, or, in a few countries, a comprehensive and integrated view of total human resources development which would incorporate all ages in the development efforts

Following the national concerns, many developing countries have already established large-scale national programmes for the education of pre-school age, while in others development has taken place on a more limited scale. In many developing countries, the earlier limited activites in early childhood have generally been urban-centred and catering to an elite population. However, now with the thrust to serve the broad masses of the population attempts to initiate new projects in early childhood education, takes into account the economic, social and cultural milieu in which these populations exist. These countries have attempted the

development of the whole child in his or her own social and cultural environment, including efforts to promote the biological, physical, emotional, social and intellectual growth of the child and of the *ecology* in which the child lives.

## Need for Pre-school Education

Basically the level of development of a country determines the conditions in which the children are born, live and grow to maturity but on the other hand children are hope of the future, and development itself depends on suitable preparation of the younger generation.

Child development is a complex process and depends upon the understanding of the basic needs of the child which may be labelled as follows :

1. Needs related to health and proper physical development
2. Need for language development
3. Need for opportunities to interact directly with the environment for cognitive and intellectual development
4 Need for social and emotional development
5. Need for aesthetic development.

The first of the above needs is related to the child's health. The effects of inadequate nutrition have been clearly documented. Most early education programmes offer ancillary food services to the child during the time he attends school. This is a primary need that must be met before the child can be expected to learn. Other health needs include medical and dental checks, vision and hearing checks, and related preventative measures

The second need involves the identification of the physically handicapped conditions that could affect the normal development of the child. Early education programmes can provide a setting and an opportunity for early screening of young children that can enable us to prevent rather than try remedy serious disabilities

The third need relates to language development in the young child Research findings appear to support arguments for the existence of a biological base in language development with characteristics innate to the human organism routinely operating to ensure development of a complete language structure However, certain conditions seem necessary for optimizing the way a child is able to use the language system (structure) available to him These conditions include the availability of adult models, the kind of feedback the child receives from the model, and the availability of meaningful opportunities to explore the functional use of language.

The fourth need that early education programmes can fulfil particularly well is the child's need to have many opportunities to interact directly with his environment. The child's intelligence can be influenced by the quality of the environment and experiences available to him. Of particular importance during the early years are many varied encounters with concrete materials, which provide the child an opportunity to operate on his own environment, the natural exchange between the child and the inanimate and social environment surrounding him forms the base for the more abstract thinking that occurs at later ages Effective early education programmes can respond to this need by constructing an optimally supportive environment

A fifth need to which early education can legitimately address itself is the social

and emotional development of the young child. There are many social, emotional and motivational factors that directly influence the child's general level of competency. If a child feels good about himself, if he believes he is capable of achieving, if he gets along well with his peers, and if he has reasonable expectations of success reinforced by his daily encounters at school, then we can expect his cognitive potential to be realized.

Cognitive and effective development cannot be separated in an early education programme. Any developmental factors that can be shaped in by the environment are most certainly related to both the child's social and emotional growth. The impact of early education in shaping the child's effective development can be considered its most important functional goal.

The child is a complete human being and all aspects of his identity develop together Children grow in body, in mind and in feelings. This three kind of growth is related to each other and together give us a view of the whole child. All normal children follow the same growth sequence, although their rate in development varies All children have basic fundamental needs of love, food care and training. Parents and other members of the family together are the first and basic influence on the children and the first source for meeting their needs for food and shelter are satisfied by the family Children are brought up by the parents within their own particular culture where common customs, beliefs, and attitudes influence how parents treat the child and how parents react to children's behaviour. The more preparations parents have for this task, the more they can assist the growth of their children into healthy mature adults. But in many parts of the world including India, there is little or no preparation for parenthood and the circumstances under which people live, jeopardize the very existence of children.

The child's most critical years with regard to physical, social, intellectual and emotional development are those before it reaches the age of 5. In India, many factors are against children's optimal development. Poverty, ignorance, food and health needs and inadequate health and social services are barriers The mothers are generally malnutritioned and the role assigned to mothers result in their over-work resulting in ill health and lack of time and energy to devote to their families. The food problems are closely related to overall health problems and the environment of the home. Young children become sick for many reasons but often illness can be traced to polluted water, disease due to flies, dirt and inadequate safe storage of food and ignorance of the basic rules of hygiene by the parents. All accidents are common because cooking fire is too accessible to the child and mother is busy with many things to take adequate care of him. In recent years great efforts have been made to stimulate production in many developing countries like India of low-cost protein-rich food to be used primarily as supplements. Projects like Integrated Child Development Scheme provide supplementary food to all the children under its care. It is a well-known fact that a well-nourished child has a better chance to learn. There is a need to create an awareness among all family members about the adequate daily diet as well as space, shelter and proper sanitation for the children.

11

## Nature of Stimulating Experiences for Intellectual Development

The young child needs parents, adult and other children to spend time with him in play and in helping him to acquire and practise basic skills. The child should be encouraged to be adventurous and to try out new activities. The time parents spend with children helping them to understand and to learn from them and people around them are very important. Play and play things, however simple, are very important for child learning. First, children respond to parents' play with words or songs, then they begin to play alone with the objects they can use as toys which are at times very simple and crude but seem to give the same satisfaction as the expensive models. Many kinds of toys can be made from natural materials and junks found around villages. As they grow, children need others to play with brothers and sisters, or neighbours' children or groups of children. The parents' job for pre-school years is to facilitate and encourage, initiative, creativity, fun and gaining of experience and to praise these activities. It does not matter if the child's drawing is done on dry mud, with a piece of stick and is unrecognizable, or if he collects insects or butterflies in the only spare jar one has or if he bruises his knees in the process. What matters is the encouragement he is given and the fun he has had in doing things., and the way he feels about his effort.

For intellectual growth, the environment has to provide ample opportunities for exploration and discovery. The experiences have to be in plenty and of the nature in which the children can manipulate and interact himself. The only animate, inanimate and social environment serving him forms the base for the more abstract thinking and that occurs at later ages. Activities like collection of natural objects available in the environment like sea-shells, pebbles of various sizes, leaves, etc should be done. With the help of these, the teacher can introduce the idea of shape, size, number, symmetry, angles, etc. Activities like these form the basis of science teaching. Before children can understand a thing, they need experience : seeing, touching, hearing, testing, smelling, choosing, arranging, putting things. Science is built from curiosity, experience, analysis and finally the expression of a discovery. The main part of this process is arranging objects, activities and ideas so as to create a new pattern. The children need to be acquainted with the people in the environment and the occupations they carried out. Trips to the vegetable market, to the main bazar, the saw-mill, the grain market, etc can be very rewarding. Talks with a taxi driver, a policeman, a nurse, a trader or a soldier can be very stimulating.

The children need to know about things and events about their environment. For example, they can learn about the weather, about things in water, things in the air, things on land, things used in home and types of fuels used, etc. Similarly they need to learn about the local festivals and important days and take part in celebrations. Fairly spontaneous investigation, both indoor and outdoor, will lead to all of sorts activities. Counting, measuring, ordering, making charts, printing, writing, modelling will all come about naturally. Most of this discovering work stimulates good creative writing by which vocabulary is enhanced

12

## Use of Art Activities to Develop Creative Abilities in Children

By creativity we mean formulating new ideas and being innovative and original The teachers and parents need to foster and encourage creativity The types of activity which should be given to the children are visual art like painting and drawing, college work as well as dramatization, role-playing, story-telling, puppetry, rhyming and responding to music and rhythm The children should be given absolutely free hand instead of laying down any rigid structures. If he is allowed to paint or model with clay in any way he likes, we will be surprised by the results which he produces Similarly the child should be allowed to be original in creating his own stories and role-playing.

The teachers' and the parents' job is to make available all types of material, however inexpensive, and allow the child to manipulate them. The pre-school child indulges in symbolic play. The child will use stick for a horse and use pots and pans and play as a householder All these should be encouraged. The worst thing that a teacher can do is to keep on stopping the child from play and reprimanding him for doing a thing incorrectly. This type of attitude discourages the initiative and undermines self-confidence. Creative activity is closely associated with appreciation of nature and beauty Hence, inculcations of an admiration, love of growing trees should be part of the activities. This will encourage motivation and spiritual development and impart emotional sensitivity and enrichment □

# Literature for Children

JAGANNATH MOHANTY

*Reader in Education,SCERT, Orissa, Bhubaneswar*

THE foundation of all human development is laid during the early years of life. Therefore, early childhood is regarded as immensely significant  The environment plays an important role at this stage  Like toys, picture books, story books, nursery rhymes and poems are considered very useful constitutents of the child's environment.  The child likes to handle the book and read them with pleasure  His reading habit is developed according to the extent of his exposure towards children's book.  Such experiences in the early childhood determine his interests and attitudes  The child who grows up in an environment of books, gets interested in the world of books and takes books as his companions. Such a child is fortunate not only in finding emotional satisfaction but also in gaining learning experiences for the all-round development of his personality.

## Advantages of Children's Literature

1.  It is revealed through research studies that children more than the grown-ups are interested in reading suitable books.  If proper reading habit is formed during childhood, such interests are multiplied and enhanced in the adulthood.  This enables the child to acquire more knowledge and skills which are essential for the modern age

2  It is psychologically proved that children's emotional development can be adequately ensured by providing suitable diversions and of all diversions, reading of good books is the most important  Promotion of reading habit among young children  is an effective means of channelizing excessive emotions into constructive lines and of developing balanced personality.

3.  Children often find their experiences and images reflected through various characters of stories, plays and poems.  They are also sometimes encouraged to express their feelings and ideas through writing stories and poems  Their latent talents are thus unfolded and they find self-expression quite rewarding

4  With a view to making universalization of elementary education a success, it  is essential to expand a broad-based pre-school education  and provide suitable literature for young children  Unless we make the pre-school as well as primary education interesting and appealing to children  the colossal wastage and stagnation at this stage of

education cannot be checked   Suitable and attractive reading materials would be effective in promoting retention

5. Research findings have also shown that children experience maximum problems in language learning. In all tasks connected with language, rural children lag behind their urban counterparts at the pre-school stage  These problems also continue at the primary stage. Children coming from disadvantaged families are further found to be deficient in linguistic ability. Adequate provision of books and journals suitable for children in school as well as at home can promote reading habits and improve their language skills. In the long run, the school achievement of such children is improved and they do better in other subjects (Muralidharan 1981)

6  Literature for young children is more important in a developing country like India, where the majority of adults are illiterate and facilities and stimulation for children's learning  poor.  Interesting books with attractive colours and get-up would provide them with proper incentives and motivation for learning through entertainment

To sum up the above advantages of children's literature, it may not be out of place to mention the points laid down by Alan Davies from the Open University, England. According to him, children's literature (a) develops the child's own use of language, (b) aids reading ability, (c) stimulates the child's imagination which will enrich activities in other fields, (d) helps the child towards appreciation and understanding of himself through comparison of his own problems with those of literacy characters, (e) widens children's horizons, (f) helps the child to re-live the experiences of others, and (g) offers the child enjoyment (Davies 1975).

## Meaning and Nature of Children's Literature

Literature which is suitable for children may be called children's literature  This suitability or relevance may be determined according to the psychological conditions and needs of the children.  Davies (1975) has pointed out two criteria for children's literature.  Firstly, such books primarily provide entertainment and enjoyment rather than information and improvement Secondly, such materials are written primarily for reading on one's own and for appealing to the individual children without any intermediary

Davies has again attempted to ascertain the difference between general literature and children's literature.  He observes

If you ask a children's librarian  whether she has any problems about deciding when a book is a children's book,  her answer may well be that it is not difficult in 90 per cent of the cases and the other 10 per cent depend on whether you regard teenagers as children or adults because 10 per cent of books deal with problems (usually involving teenage characters) such as drugs, unmarried mothers, race, etc.  (Davies 1975)

Thus the decision on doubtful 10 per cent cases seems to rest on two criteria . the first is whether the heroes are children or teenagers; the second is whether the themes, i e. the ideas and relationships are simple or complex  This also affects the language. So a classic like *Gulliver's Travel* is admitted into children's literature on the second criterion.  Simplicity of theme is, therefore, the over-riding criterion.  In brief, all literature is children's literature unless it is found

15

too complex. But *The Turn of the Screw or Lolita* would not be admitted because they do not meet the second criterion.

On the other hand, Iason Epstein (1969), an American critic, argues that there is no difference in principle between good children's literature and good literature. Literature for children has the same standards as all literature, and the child's reading needs are the same as those of the adult. Epstein means to say that there is far too much fuss about literature for children.

These two views give very simplistic and generalistic concepts about children's literature. Neither of them is pin-pointed and clear-cut. It is extremely simplistic to think that the librarian can make the difference between children's literature and general literature. It is also equally generalistic to say that both are identical and that the child's reading needs are the same as those of the adult. As has been mentioned earlier, children's literature must be different from general literature as their physiological and psychological needs and conditions are quite different.

### Social Needs of Young Children

Again, all children's books are not equally suitable for children in the age-group 3-8 years and 9-14 years. Books which are best for one age-group may not be even good for the other. This is due to the differences in their physiological, psychological and sociological conditions and needs. Especially, psychological as well as physiological development makes all the difference. The smaller the age-group, the greater is the difficulty in writing books suitable for them. Just as children's literature forms the basis for literature for adults, so the literature for children

of 3-8 years should form the basis for literature for children between 9-14 years.

Even a small child who loves toys can learn to love books. Books should, therefore, be designed in such a way that they may serve as toys for children. Although children may not be able to learn to read books, they can yet love to handle them and to look at the illustrations. Therefore, picture books are liked by young children very much. As such the books meant for the young children should be well bound and strong paper should be used for printing the text and cover.

Even such books are printed on pages made of cloth. Some years back such special books were brought out by a London-based publisher. It was declared that the book would stand the rough handling by young children and when such books get dirty, they can be cleaned by Lux soap which was certified by the concerned company (NCERT 1980).

Another interesting example of such books brought out in the shape of toys is a book on cat which was so designed that it looked like a cat and its eyes rolled as the book was handled. When it was pressed the book produced mewing sound. The book contained illustrations of cats in attractive colours. Similarly some books when opened look like a house, building, garden and other things in three dimensions. Such three-dimensional books must be loved by children like toys.

### Writers to Note

The literature for children seeks to cater to their psychological needs. It recreates for them the world around and children try to re-live the experiences of the literary charac-

ters. The young children are egocentric and they like those things which appeal them most. Of course, gradually their environments expand in order to embrace other children, school, fauna and flora around them

True, children's literature must stimulate the child's imagination and curiosity Creative plays and games should find their place in their books. These books must be within the level of understanding and experiences. Children's love for fun and laughter must be properly taken care of in their books. Simple stories, nursery rhymes, action songs and so on are liked by them mostly. Too many ideas and concepts should not be treated in one piece of material. Illustrations used in the children's books must be attractive and colourful. Books should be economically priced. On the whole, books for children must reach the interiors and should be up to their standard, tastes and interests.

It has been aptly remarked by Abraham Joseph, Director, State Institute of Children's Literature, Kerala, that the writers must liberate the child within them and allow it to think, speak, sing, write and draw as it likes, in short, to behave as truly as it wants (NCERT 1983) They should realize that every small child is a big question mark and the world is a wonderland where it has the Alice to feel all kinds of things They must have, therefore, deep sympathy, understanding and strong confidence in the child and its wonderland

## References

Davies, Alan *Literature for children* U. K., London. Open University, 1975

Epstein, J Good bunnies always obey. In Sheila Eguoff *et al* (Eds.) *Readings in children's literature.* Toronto : OUP, 1969

Mohanty, J. *The book through ages.* Cuttack. J. Mohapatra & Co , 1980

Muralidharan, R. Literature for young children. Cyclostyled paper presented at the seminar-cum-workshop on children's literature held at Trivandrum, Kerala, 1981

NCERT. *XXI National prize competition for children's literature report* New Delhi, 1980

NCERT *Focus on problems and prospects of children's literature* New Delhi, IX, January 1983 □

# School Characteristics and Incidence of Stagnation in Rural Primary Schools

RAMESH CHANDRA SHARMA

*Assistant Professor, Indian Institute of Education, Kothrud, Pune*

THE PRESENT investigation is aimed at studying the shool characteristics and incidence of stagnation in primary school in rural areas. The main objectives of the investigation were

1. To study the school characteristics of the primary schools in rural areas
2. To study the incidence of stagnation among pupils of primary schools in rural areas

## Methodology

The sample consisted of 20 villages selected stratified-randomly from four Panchayat Samithis of Mahbubnagar and Medak districts of Andhra Pradesh. All the primary schools in the selected villages, including hamlets, whether they were government, private, fully aided, private, partly aided or unaided, were included in the sample. In all 22 primary schools were surveyed from Mahbubnagar (11) and Medak (11) districts of Andhra Pradesh. The medium of instruction in all the surveyed schools was Telugu

Keeping in view the main objectives of the investigation, a school schedule was designed to collect information on school characteristics and incidence of stagnation. The school characteristics were studied in terms of location of school, surrounding of school, school building, type of floor in school building, ownership of school building, drinking water facilities, single and multiple teacher schools, and furniture and equipment The information on incidence of stagnation was collected from the attendance registers of various classes for each surveyed school The number of children stagnated in each class was calculated on the basis of children retained in the same class due to shortage of attendance as there is a policy of non-detention at school stage in Andhra Pradesh. Stagnation refers to the continuance of pupils in the same grade for more than one academic year. The figures for the incidence of stagnation were located from the class attendance registers for the last five years, i.e. 1977-78 to 1981-82.

The school schedule was canvassed for all the primary schools of 20 selected villages. The investigator visited these schools personally. In addition, the investigator had informal discussions with the

concerned government officials dealing with primary education at Panchyat Samithi and district levels. Percentage was employed to analyse the data.

Results

Based on the analysis of data, the following findings have been drawn :

1. The primary schools in rural areas were run by Panchayat Samithis and were directly under the supervision of extension officer (education)

2 About 40 per cent of the sample schools covered in the survey were found to be located in by-lanes of the village, 13 63 per cent were centrally located in the village, 13.63 per cent on main road while 13.63 per cent were located on the outskirts of the village None of the sampled schools was located near market area of the village

3. Majority of the sampled (77 27 per cent) schools were located in dusty surroundings. Only 18 per cent of the schools were located in the healthy surroundings. One school in Mahbubnagar district was located in noisy surroundings.

4. About 40 per cent of the schools were having pucca buildings while 18 18 per cent of the schools were having katcha thatched huts. About 40 per cent schools in both the districts had semi-pucca buildings The proportion of schools having pucca buildings was more in Mahbubnagar than in the Medak district.

5. About 59 per cent of the schools had mud floors while 31 81 per cent schools had stone floors in both the districts. Only 9.09 per cent of the schools were having cement floors. The proportion of sampled schools having mud floors was more in Medak district than in Mahbubnagar district.

6 About 45 per cent schools in both districts were housed in rent-free buildings while 27 27 per cent of the schools were housed in their own buildings. One school in Mahbubnagar district was housed in partially owned and partially rented building. The proportion of schools having rented buildings was more in Medak district while the proportion of schools housing in rent-free buildings was more in Mahbubnagar district than in Medak district

7. Nearly 73 per cent of the schools in both the districts had drinking water facilities within the neighbourhood, while 18 18 per cent of the surveyed schools had water facilities within the premises Two of the schools in Medak district did not have any drinking water either within the premises or in the neighbourhood.

8 About 27 per cent of the schools were having only two classes — I and II — while 36.37 per cent of the schools were running with all the five classes—I to V. The proportion of schools having classes I to V was more in Mahbubnagar district than in Medak district, while the proportion of schools having classes I to III was more in Medak district than in Mahbubnagar district.

9. More than half of the sampled schools, i. e. 14 schools (63.63 per cent) were single-teacher schools The proportion of two and four teachers formed 9 09 per cent for each. There was only one school in Mahbubnagar district with five teachers. The proportion of single-teacher schools was more in Medak district than in Mahbubnagar district.

10 Two schools having classes I to V were found to be run by the single teacher and the same number of sampled schools having classes I to IV were found to be run by the single teacher. About 27 per cent

schools having only classes I and II and 27 26 per cent of schools having three classes—I to III—were found to be run by the single teacher. Two schools (9 09 per cent) having classes I to V were run by four teachers and there was only one school in Mabbubnagar district run by five teachers It happened to have all the five classes from I to V.

11. It was observed that neither Mahbubnagar district nor Medak district had schools in our sample which possessed all the necessary items for a school. Mirror and first-aid box were not available in any school Waste-paper basket and district maps were available only in one and two schools, respectively. Items like school notice-board and play materials were available in three schools while ball-frames, picture books, world map, box tumblers were available only in four schools of both districts. Time-piece or almirah, tatpatis or benches and globe were available in 5 schools (22.72 per cent) while school sign-board and brooms and maps of India were available in only 6 (27. 27 per cent) and 7 (31. 81) per cent schools, respectively. The items relating to the facilities for teachers were available in more sample schools than the items on facilities for pupils Facilities for childern were generally poor in both the districts. Considering facilities for teachers only majority of the sampled schools had a table and a chair for the teacher. However, 36. 36 per cent schools were having a duster and 77. 27 per cent schools were having a black-board. It was also found that though the sampled schools were having those items they were not making much use of it.

12. The percentage of stagnation among pupils of schools run in thatched huts were 65. 79 per cent and 54. 26 per cent in Mahbubnagar and Medak districts, respectively

13 The percentage of stagnation among pupils in single-teacher and multiple-teacher primary schools were 37 65 per cent and 28 14 per cent, respectively, in Mahbubnagar district as against 43 60 per cent and 71.77 per cent, respectively, in Medak district The total percentage of stagnation among pupils was 42 29 in single-teacher schools and 32.74 in multiple teacher school in Telangana region.

14 The percentage of stagnation among pupils was higher in the schools where teachers resided outside the village The percentage of stagnation in sampled schools of Mahbubnagar and Medak districts were 24 71 and 80 16, respectively, where teachers' residence was outside the village

15. The percentage of stagnation among pupils was higher for all students in Medak district than in Mahbubnagar district. However, both in Mahbubnagar and Medak districts, the percentage of stagnation was higher where schools were nearer to urban centre.

16. The percentage of stagnation among pupils in Telangana region was the highest (64.15) in those villages where the irrigated area was 50 per cent and above of the total cropped area of the village. The percentage of stagnation among pupils was also high (46 55) in those villages where the irrigated area was less than 10 per cent of the total cropped area of the village

Conclusion

Based upon the above findings, the following conclusions were drawn :

1. The percentage of stagnation among pupils was found to be high in

single-teacher schools as compared to multiple-teacher schools in rural areas.

2. The percentage of stagnation among pupils was high in schools which were running in thatched huts

3. The percentage of stagnation among pupils was higher in the schools were teachers resided outside the village than in those schools where teachers resided in the village

4 The percentage of stagnation was high in those villages where the irrigated area was 50 per cent and above to total cropped area of the village

Thus it seems that the school characteristics have some impact upon the percentage of stagnation among pupils of primary schools in rural areas. The findings of the survey regarding school characteristics highlight a very deplorable and pathetic condition of the primary schools in rural areas. Some of the primary schools in rural areas do not have the basic necessary facilities and items for a school. Majority of the primary schools in rural areas do not have healthy surroundings, sufficient teachers, pucca school buildings and drinking water facilities within the premises. Not a single sampled school either in Mahbubnagar or Medak district did possess all the necessary items for a school in terms of furniture and equipment (school sign-board, notice-board, school bell, national flag, time-piece, box or almirah and mirror) and facilities for teachers (table, chair, blackboard and duster), facilities for pupils (tatpatties, benches, earthen pots, tumblers, buckets, brooms, waste-paper baskets), teaching aids (ball-frames, alphabet chart, picture books, district map, state map,

India map, world map and globe) and other equipment such as first-aid box, and play materials.

The above necessary items do help in making school attractive for children to attend it regularly No doubt, the Government of Andhra Pradesh implemented in 1971 its policy of the aboilition of detention of students in any school throughout the state, at any level, except at class VII and X. Under this policy no student could be detained in any class for reasons other than shortage of attendance. In other words, it was hoped that the policy of non-detention would eliminate the incidence of stagnation among pupils at school stage especially at upper primary stage. Sharma (1981) found that the percentage of drop-outs among boys and girls was comparatively higher during the pre-non detention system than in the period of non-detention system. Moreover, the percentage of drop-outs among boys and girls was found to be decreasing more during the non-detention system than during the pre-non-detention system.

Stagnation or repetition refers to the continuance of pupils in the same class for more than one academic year on account of unsatisfactory progress. At primary stage, the stagnation of pupils is due to shortage of attendance. Stagnation adds to wastage by lengthening the effective duration of the course. The study conducted by Bombay Municipal Corporation (1967) observed that 92.9 per cent of pupils left school after one failure in 1957 as against 49.7 per cent cent in 1950, while 3.4 per cent of the pupils left school after passing in 1957 as against 6.61 per cent in 1950

Though the policy of non-detention provides provision for eliminating the inci-

dence of stagnation among pupils at primary stage, school characteristics as well as some other factors do have a considerable impact on incidence of stagnation. It can be suggested that the primary schools in rural areas should be provided more facilities in terms of school building, substitute teacher in single-teacher schools, residence for teachers in the village, playgrounds, drinking water and sanitation facilities within the school premises, furniture and equipment, etc The sufficient provisions should also be made to improve the existing facilities and changes in school timings be made to suit the pupils. These measures would indirectly help in reducing the incidence of stagnation among pupils at primary stage

in rural areas. By providing these basic facilities, primary school in rural areas would become attractive and pupils would be motivated to attend it regularly It will also help in reducing the incidence of wastage among pupils indirectly

## References

Bombay Municipal Corporation. *Study of incidence of wastage and stagnation and effectiveness of our education efforts.* Primary Education Department, 1967

Buch, M B A survey of research in education. Baroda . CASE, M.S University, 1974

Sharma, R.C. *Policy of non-detention in Andhra Pradesh : An evaluation research.* Hyderabad · Administrative Staff College of India ,1981 ☐

# Towards a Performance-Based Classroom

LALIT KISHORE

*Principal, Central School, Tenga Valley*
*Arunachal Pradesh*

BEHAVIOURIST psychology describes learning as a change in the behaviour of a learner that can be described in terms of explicitly measurable optimal performance. If the learner, as a result of classroom instruction, can achieve mastery or near mastery of the subject-matter, the performance is said to be optimal. And performance-based learning situation can be achieved by allowing the students to learn at their own pace and providing for enough individual guidance so that every student is able to achieve an anticipated level of performance.

Many educators (Bloom 1968, Keller 1968, Block 1971, Clift and Imrie 1981) feel that if the classroom instruction is really good, the final student-performance should not resemble the bell-shaped curve of normally distributed scores, but rather, it should be skewed up towards the higher end. According to Bloom *et al.* (1971), a random distribution indicating 'grading on a curve' for a final examination means that the instructor has not taught anybody any more than one would expect them to learn by chance. Therefore, bringing about

conditions so that the anticipated performance level is achieved by most of the students, is basic to the performance-based classroom instruction. Generally, for a performance-based classroom an achievement level of 70 per cent or more marks in unit tests is fixed

## Organizing Performance-based Instruction

Most of the performance-based instructional methods, such as mastery learning procedure (Bloom 1968), personalized system of instruction (Keller 1968) and individually guided system of instruction (Mathur 1983) are based on the theoretical ideas developed by Carroll (1963) According to Carroll, the performance-based instruction should be organized in the following steps :

1.  Specify what is to be learnt and prescribe a level of performance.
2.  Motivate students to learn.
3.  Provide instruction to foster learning.
4.  Present materials, at rates appro-

priate to different students.

5. Monitor students' progress through readiness tests.
6. Diagnose students' difficulties and provide remediation
7. Give praise and encourage pupils for good performance.
8. Give review and practice.
9. Maintain a high rate of learning over a period of time

For implementing performance-based instruction, the subject-matter of a course is broken up into small learning blocks called 'study units'. The student is allowed to pace himself through the study units and consolidate his learning. As and when the student thinks that he has consolidated his study unit in hand, he takes the readiness test on it. The test assesses whether the prescribed level has or has not been achieved by the student. If the student fails to achieve the prescribed level of performance, he repeats the unit by taking individual guidance from the teacher and fast-learners. The student advances to the next unit only when he passes the readiness test with a score more than the prescribed level to performance.

**Readiness Testing**

A readiness test is the evaluation procedure which measures whether a learner has or has not achieved the specific level of performance. The readiness test score is compared with absolute performance standard and quality of instruction. When a student achieves the test score more than the specific performance level he is said to be ready to learn the next study unit. According to White and Duker (1973), the readiness testing has the advantage that it at least forces the curriculum builders to specify what it is that they are trying to accomplish, thereby helping us to understand the educational model they are assuming and the 'values' the model implies.

**Advantages of Fixing Performance Level**

Making the students contract for a level of performance, has the advantage of committing them to self-initiative and self-direction in learning. Also, fixing the performance level helps the teacher in planning his teaching with the element of remedial instruction (Romey 1971). It not only helps the teacher to identify the weak students but also to organize the amount and intensity of individual guidance they need. It also provides a standard by which the teacher can measure his own performance in terms of the achievement of his student (Popham and Baker 1970).

Moreover, fixing a performance level has yet another advantage that it helps students to strive for consolidation of the subject-matter being taught. The performance based classroom has the emphasis on the 'statement of behavioural objectives' and 'competencies to be mastered by the students'. A good objective must be specific and describe in 'measurable terms' the post-instruction behaviour of the students. Clearly stated specific objectives not only help the teacher in evaluating the performance of his students but in planning and evaluating his own classroom instruction also.

**References**

Block, James H. (Ed.) *Mastery learning Theory and practice* New York Holt, Rinehart & Winston, 1971

Bloom, B.S. Learning for mastery. *Evaluation Comment*, 1 (2), 1968

Bloom, B.S. *et al. Handbook on formative and summative evaluation of student learning* New York McGraw Hill, 1971

Carroll, M L. *Effective guidance of the elementary school child.* In *Teacher's encyclopedia.* Englewood Cliff, N J Prentice Hall, 1966

Clift, John C. and Imrie, E. *Assessing students, appraising teaching.* London Groom Helm, 1981

Keller, F S. Goodbye teacher *Journal of Applied Behaviour Analysis,* 1, 1968

Kishore, Lalit The Effectiveness of mastery learning A session of try-out. *Pathways,* 1982

Kishore, Lalit. Learning for mastery : An instructional design. *University News,* 21, (1), 1983

Mathur, R N On implementation of master learning strategy. *Journal of Higher Education,* 4, 1977

Mathur, R.N *Guidelines to implementation of IGSI.* New Delhi NCERT, 1983

Pangotra, N N and Kishore, L The value of mastery learning procedure *Education Review,* 88 (7), 1982

Popham, W J and Baker, E.L *Establishing Instructional goals* Englewood Cliff, N.J Prentice Hall, 1970 ☐

# Curricular Changes at School Level in Andhra Pradesh

R. Krishna Rao
*Reader in Education, University College of Education*
*Osmania University, Hyderabad*

(Smt.) R Papa
*Headmistress, Z. P. Girls' High School, Suryapet, A.P.*


After reorganization of states on the basis of linguism in the year 1956, the Ministry of Education, Government of Andhra Pradesh, on the recommendations of Mudaliar Commission on secondary education introduced basic changes in the school education as a parallel to the then existing inherited education system from the British. In this regard the government started several higher secondary and multipurpose schools, wherein the vocational and technical education have been given due importance. The primary education was rechristened as basic education. To this effect, the state government introduced changes in the curriculum from Class I to XII, X, XI and XII being higher secondary classes. The then existing curriculum was not based on work-experience. To this effect, the government spent millions of rupees to implement the programme But in due course the system has failed because of several reasons. The following are some of the important reasons for its failure :

1. The persons who are involved in th processes, failed to grasp the basic philosophy behind the basic education.

2. If they grasped to some extent, they misinterpreted the same due to their ideological differences.

3. Lack of financial resources to cope up with the huge expenditure, which is required to implement the scheme of basic education.

4. Lack of qualified and well-trained teachers and administrators at different levels.

5. Immediately after independence, because of the remnants of inherited British culture, the Indians were not in a position to accept radical changes in the educational system.

6. Lack of proper feedback in the process has been felt by those who are

26

THE PRIMARY TEACHER

in charge of implementing the scheme of basic education.

At this juncture the Government of India appointed a Commission under the Chairmanship of Dr. D S Kothari to go into the details of the processes of all stages of education, and to suggest a remedy for the same. To this extent, they submitted a comprehensive report in 1966 with all details Thereafter under the guidance of the Central Government, the Government of Andhra Pradesh appointed several academic committees to discuss the recommendations of the Education Commission and their relevance to the state. Finally, after critical evaluation of various aspects of implementation, the Government of Andhra Pradesh accepted the recommendations of the Education Commission to a great extent.

On the recommendations of the Education Commission (1964-66), the State Government of Andhra Pradesh adopted the 10+2+3 pattern and changed the syllabus at all levels Thereafter several evaluative techniques were formulated to study the progress. Further changes were made in the curriculum up to Class X based on the recommendations of Iswari Bhai Committee. In this regard the Government empowered the State Council of Educational Research and Training to do the needful. So the SCERT has taken it as a challenge and an effort is being made to introduce the new curriculum in a phased manner. The new curriculum for Class I and II has been introduced during the academic year 1979-80 and in Class III and IV during the academic year 1981-82. In this way the new curriculum is proposed to be introduced up to Class X by the end of 1985. The SCERT also formulated certain objectives for revising the curriculum.

## Objectives of Curriculum Revision

The syllabus of the upper primary stages in the State of Andhra Pradesh has been revised, keeping in view the following objectives.

1.   To provide for the new knowledge, skills, attitudes and values necessary for the future citizens which have become necessary because of ·

(a)   Our preference to establish a socialistic pattern of society and our choice of democracy as a way of life as well as a pattern of the government

(b)   The responsibilities the future citizens have to shoulder, the problems they are to face, etc. in view of the changes taking place in various fields of knowledge and sectors of social activity in a developing country like ours

(c)   The need to reduce cognitive loads on the children without sacrificing the basic and essential elements.

(d)   The growing need to understand problems more objectively and act more rationally in the fields of personal and social life.

(e)   The necessity to avoid the evil consequences of industrialization and/or urbanization. Consequent on industrial development, while at the same time contributing to a quicker and balanced economic growth of the society.

2. To provide for experiences and opportunities for the physical and intellectual development of the pupils, their aesthetic appreciation, etc.

3.   To provide for the growth of desirable character in the children

4.   To acquaint them with the world of

27 .

work and to enable them to acquire the necessary basic skills in the field which may help them to become productive workers at a later stage as useful citizens.

5. To enable the children to lead a happy and healthy life now as well as in future besides contributing to social harmony

6 To enable them to pursue later on the higher studies with ease and confidence

7 To feel at home with the environment in which they are born and brought up and to contribute to its improvement.

Keeping in view the above objectives, and the syllabus frames suggested by the Iswar Bhai Patel Committee, the expert committees formed by the government prepared the new curriculum for classes V to VII. The SCERT also requested the syllabus committees to include the following relevant aspects wherever possible :

1. Removal of casteism and untouchability and the role played by Gandhiji and Ambedkar, etc

2. Importance of Samchayaka programme.

3 Population education.

4. Injurious effects of smoking and drinking, etc.

On all these objectives and suggestions made by academicians the SCERT prepared textbooks and implemented the revised curriculum in a phased manner.

As teachers with knowledge of the grassroot level, our observations reveal the following problems while implementing the revised programmes in curriculum :

1 Due to nationalization of textbooks it is not possible to supply textbooks in millions to the students at proper time because of administrative delays

2 For effective implementation of the new curriculum the teachers should be equipped with handbooks and teacher guides. This has not been done due to lack of funds.

3 As the Department of Education at state level and district level is fully engaged in the preparation and implementation of new syllabus in various classes, they are not able to find enough time for orientation classes to train the multitudes of teams of teachers.

4. Due to administrative delays, the state departments failed to see the effective implementation

5. Even though the government changed the curriculum, they have not taken seriously the importance of orientation classes to the teachers.

6 There is a lack of rapport between teachers at the lower level and teacher-educators.

7. The revised curriculum consists of several new aspects. But the rural schools are not provided by audio-visual aids to teach them effectively.

The Directorate of School Education has been implementing the new curriculum for the first 10 classes So far changes in the curriculum could be implemented for seven classes and efforts are on for preparing new curriculum for the rest of the classes. As far as our knowledge is concerned, no established evaluative technique is developed by the department to see the effectiveness of new curriculum When there is no evaluation one can say that there is no feedback

mechanism in the implementation of curriculum This is considered to be the routine activity of our education department For the success of any new scheme, the feedback activity must run parallel to the inventive or experimental programme, otherwise everything goes waste. So what we feel is that the government or its academic bodies should develop an effective evaluative mechanism/technique and all the innovative experiments are evaluated for proper appreciation of the programme.  ☐

# News and Views

## Low-cost teaching aids

A SEMINAR on low-cost teaching aids at district level was organized at SIE, Solan from 27 to 29 July 1983. This model plan for the development and use of low-cost teaching aids includes the objectives, methodology, materials for preparation of teaching aids and the teachers who could be trained at block/district level. Under this programme, 20,000 teachers in ten districts will be trained over a period of five years. Expenditure on the plan is expected to run into 35 lakhs

The main topic of discussion at the seminar was implementation of low-cost teaching aids programme at grassroot level. The objectives of the seminar were : (*i*) to inculcate the spirit of preparation and use of low-cost teaching aids in the classroom situations, (*ii*) to relate learning to the environment, (*iii*) to involve children in the teaching-learning process, and (*iv*) to work out strategies for dissemination of these aids at the block and village school levels.

## New freedom movement folio

NCERT is shortly planning to bring out a multicoloured publication to depict the history of the freedom movement. This folio, which will be of the size of an album, will capture important events of the freedom struggle and will be well-documented.

Although the publication will be a prized possession for teachers and students in high schools and higher secondary schools, it can also be used by teachers in the lower classes for teaching the saga of our freedom struggle. The visual part will greatly help the primary kids to understand the subject At the other stages, school children can use it for project work— an activity which si being increasingly emphasized in the curriculum But those who would benefit most from the proposed folio could be the higher secondary school students. They could make use of the original source material being reproduced on one side of each leaf

Organizations like national and state archives, Nehru Memorial Museum and Library, Gandhi Darshan Museum, Netaji Research Institute, National Library, etc have helped in providing materials for the publication, which would cover all aspects and phases of India's freedom struggle To begin with, the folio will be brought out

30

in English. This will be followed by a Hindi version.

## Primer for Saora kid

EDUCATIONISTS are making all-out efforts for promoting education among the scheduled tribes of the country. Under this programme an experimental edition of a primer, *Saora Bhasha ki Praveshika* has just come out. It is meant for Saora kids of Class I. Written in Saora language and Oriya script, the primer contains lessons in both Saora language and mathematics. The book has been prepared by the Scheduled castes and Scheduled Tribes Education Unit of NCERT Initially, the primer is to be tried out in 60 schools each in Paslakhemundi and Gurupur educational districts in Orissa The final version of the book will be prepared after it has been tried out for one year.

As a follow-up, the primer for Class II running into two parts will be prepared and teachers of the experimental schools will be oriented in the use of the primer.

## Education through computers

A LECTURE on 'current status of micro-computers in education' was delivered by Mr. Michael Asto, a national coordinator for computer-based learning for the Department of Science. He is hopeful that there would be easier interchange of software between countries where language has been a major barrier in the past

A similar lecture was also organized under the NIE lecture series on 'computer assisted learning · A review of prospects'.

This lecture was delivered by Mr David Squires, Adviser for Computers in Education, Devon (U K.). While answering questions after his lecture, he said :

> It would be ideal to experiment with computer-assisted learning in handful of project schools given the Indian conditions because to introduce it on a large scale would mean having to revamp the entire existing curriculum .
> The emphasis in CAL was on making students aware of the dimensions and power of using computers and also of their limitations.

Earlier, students were taught fast programming Underlining that CAL was cost effective, Mr. Squires said that cheap micro-computers were making CAL a realistic possibility in secondary and primary schools. "What you cannot do in anyother way you can do with a computer"

## Projecting the status of women

'STATUS of Women through Curriculum', an elementary teacher's handbook, is the result of deliberations in several conferences at which some values were identified by subject experts, school teachers, teacher-educators, curriculum framers, textbook writers, educational administrators and resource persons from NIE Brought out by the Women's Education Unit (NCERT), it reflects values commensurate with the status of women. It takes into its scope identified values and disciplinary objectives also

Projection of values for cultivating cogent attitudes in both sexes is what the handbook aims at. It includes projection

designs in languages (Hindi, English, Sanskrit and Urdu), social sciences (geography, civics and history), mathematics and sciences for teachers at the elementary stage The handbook is meant for teachers to exercise their ingenuity in helping children interpret social facts from the point of view of cultivating scientific temper which alone is conducive to the status of women in society While projecting values in language (Sanskirt), the handbook states :

> The sanskrit teachers has an easy access to the vedic period when women enjoyed a very high status in society Inter-house competitions, naming houses after Mahila Rishis, arranging exhibitions depicting the high status of women in Vedic and Upanishadic ages, collections of stamps issued in honour of women who had done meritorious services in any field, can provide such opportunities to boys and girls to make them realize that they are both important components of the society and together they have to share all responsibilities for the achievement of high ideals and national goals

## Punjab

THE Punjab University Sports Committee has decided to give stipends to outstanding sportsmen and sports women. It has made a provision of Rs. 40,000 for 1983-84 in its budget The amount is likely to be raised to Rs 80,000 The stipends will be given over a period of 10 months, i. e. July to April.

## Haryana

THE Government of Haryana has upgraded 884 schools in the state. Three thousand seven hundred and fifty new teachers were also recruited during the academic year.

## Andhra Pradesh

THE Government of Andhra Pradesh has sanctioned 16,000 new posts of teachers with the idea of converting single-teacher schools into double-teacher schools in the state According to an official press-release, the state government has sanctioned the opening of 18 government degree colleges and 28 government junior colleges in the state during the current academic year

## Himachal Pradesh

THE Government of Himachal Pradesh has decided to nationalize textbooks at primary school stage and also make use of instructional material developed by the SIE, Solan under the Unicef-assisted project 'Primary Education Curriculum Renewal'.

The state government has requested the Government of Andhra Pradesh to provide the services of a few Telugu teachers to teach Telugu in the state-run schools for a period of one year. □

Regd. No. 28935/76